

**FLORA SCOTICA;
OR A
DESCRIPTION
OF SCOTTISH
PLANTS, ...**

William Jackson Hooker



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FLORA SCOTICA;

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A DESCRIPTION

OF

SCOTTISH PLANTS,

ARRANGED

BOTH ACCORDING TO THE ARTIFICIAL AND NATURAL
METHODS.

IN TWO PARTS.

BY

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London :

PRINTED BY BODLEY AND JAMES CLARKE, STATIONERS,
FOR ARTHUR & CONSTABLE AND CO., EDINBURGH; AND
ALBAY, ROBINSON, AND CO., CHANCERY, LONDON.

1821.



TO THE MOST NOBLE
JAMES DUKE OF MONTROSE,

CHANCELLOR OF THE UNIVERSITY OF GLASGOW,

&c. &c. &c.

This work, which I take the liberty of inscribing to Your Grace, contains a description of the plants of Scotland, a very large proportion of which are indigenous to the domains belonging to the Chief of the family of GRAMER. The materials methodized by me in this volume were, many of them, collected at a period when I could not anticipate that I should ever be called to discharge those duties of public instruction which have

devolved upon me in consequence of Your Grace's kindness and protection ; but a full reward will be given to the labours of my earlier years, if they now contribute to assist the pursuits of the students confided to my care.

By striving, as far as my humble efforts will extend, to promote the prosperity of the University of Glasgow, I can alone testify the gratitude which I owe to its Chancellor.

I have the honour to subscribe myself,

My Lord,

Your Grace's very obedient

and very obliged

humble Servant,

W. J. HOOKER.

Glasgow, April 16, 1821.

PREFACE.

THE general division of Scotland into Highlands and Lowlands is in itself sufficiently indicative of the nature of the country, and of its aptness to the purposes of Natural History. The Lowlands, adjoining the English frontier, present an extensive and level range of the most fertile corn-fields, interspersed with moist woods, and occasional tracts of barren heath. In a surface thus diversified, and also containing a correspondent variety of soil, the botanist will meet with the greater number of the plants peculiar to the southern districts of Great Britain; while the mountains and rocks of the Highlands furnish a considerable number of others, for which search has in vain been made in any other part of the United Kingdom.

Such a country, though happily now forming an undivided portion of the empire, is of itself so naturally separate, and was so long regarded politically so, that there can scarcely be raised a question as to how far it deserves the distinction of having a volume dedicated expressly to the elucidation of its vegetable productions. In England, as well as upon the continent, the advantage of partial Floras has been generally recognised: they supply the defects of peculiar districts with the means of examining and ascertaining the plants of their vicinity at a comparatively small expense: they furnish an important contribution to vegetable geography; and they record a multitude of facts which would otherwise escape observation; as well as contain in many instances more laboured and more minute descriptions than can be admitted into works of more extensive range.

Steuart, as early as the year 1688, published his *Scotic Illustrata, sive Prodomus Historiæ Naturalis Scotiæ*, in two small folio volumes, the second of which was devoted exclusively to plants. This work was shortly afterwards attacked with severe remarks, which he met with a *Pindarus contra Prodomomai-*

tiges. Whether it was owing to the rebuff which poor Sibbald experienced; or to the unsettled state of the country, little qualified to encourage scientific pursuits; or to any other cause; no further attempt appears to have been made to illustrate the vegetables of Scotland, till the appearance of the *Flora Scotica* of Lightfoot, in the latter half of the last century, a publication soon followed by *Two Lists of plants lately discovered in Scotland by Mr. Dickson*; the one communicated to the Linnean Society, the other printed in his own 3d fasciculus of *Cryptogamous Vegetables*. At a subsequent period, the late indefatigable George Don made many, and in certain instances very unexpected, additions to the *Scottish Flora*, the greater part of which he published through the medium of *Smith's Flora Britannica*, or *Sowerby's English Botany*; but some of them are to be found in his own fasciculi of *Dried Plants*. In times more immediately our own, Mr. Hopkirk of Glasgow, the founder of our Botanic Garden, has made a more important contribution to the Natural History of Scotland, by the publication of his *Flora Glasgoviensis*; but still, with the exception of Lightfoot's work, none has yet appeared professing to be a complete *Flora* of the country north of the Tweed. It will be observed that, in making this remark, I speak only of a *Flora* exclusively devoted to Scotland; it would be an idle task, and it would also be a needless task, to provoke a discussion of the merits or demerits of those among my contemporaries whose publications embrace the plants contained in the whole extent of the British Isles. With these I enter into no competition; nor have I a single observation to offer that may detract from the merits of Lightfoot. His work contains a great mass of curious and valuable matter, selected with judgment when it is a compilation, and admirable when it is original. But it has long been out of print; and it may be added, without any dissimulation on his part, that during the last fifty years Botanical science has made such advances that a new and a different work is now required. To supply, therefore, this desideratum is the object of the present publication. The want of a similar work was felt by

myself severely during the last course of my Lectures, and I have reason to believe that it has been equally complained of in the other Universities of Scotland. Of my own qualifications for the task it would by no means become me to speak: I, most assuredly, cannot lay claim to the advantages arising from a long residence in the country; but, on the other hand, I am not altogether a stranger to it. Two successive years, undertaken for the purpose of the cultivation of this branch of Natural History, the one in company with Mr. Borer, the other with Mr. Turner, and both of them extending over by far the greatest part of the country, have rendered me, in some measure, acquainted with its vegetable productions. For a much more extensive and intimate acquaintance with them, I am proud to acknowledge myself indebted to the communications of my friends, who are residents in various parts of the kingdom: the information they have supplied me with is inexhaustibly accompanied with their names; but in a peculiar manner I feel myself bound to acknowledge the exertions made by my friend R. H. Greville, Esq. who devoted a very large portion of his time to the study of the miniature Fungi, with a success to which that portion of the work will bear ample testimony. Still much remains to be done in that extensive tribe, as well as among the Conifers, nor could the Botanists of Scotland render a more acceptable service to their Flora than by searching for new individuals of these families: and I can assure them that their labours will be rewarded by numerous interesting discoveries.

The work is divided into Two Parts: the First comprising all the plants of Scotland, arranged according to the Linnean system, with the exception of the last class Cryptogamia. It contains generic and specific characters, with further descriptions and observations, where considered necessary, and occasional remarks on the uses of the plants. The synonyms are curtailed as much as possible, a single reference being considered sufficient where such can be made to a good figure, or to some work which shall have described the plant as a native of Scotland. The Second

Part is devoted to the Natural Arrangement¹; and here I may claim the merit of being the first who has made such an attempt with the indigenous plants. This section begins with the Cryptogamia, which in the Linnean system immediately follows the 23d class, or the last included in the first part of the work, and which may thus be said to occupy its right place, whichever method may be followed by the student. In the Cryptogamous or Acotyledonous plants, observations are frequently added to the synonyme and habitats; but in the other two classes which correspond with the 25 Linnean classes, treated of in the foregoing part of the Flora, it has been desirable to exclude all remarks and particular stations, and refer for these to the First Part. In all this, my aim has uniformly been to avoid the inconsistency and the expense of a large book. Could the whole have been comprised in a still smaller compass, it would have been my wish that it should have been so; but to have acquired brevity at the expense of clearness would have been no benefit to those who may use this work, and would have been no obvious failure in my own object.

Glasgow, 10th April, 1821.

¹ In collecting the characters given of a large proportion of the natural orders, indeed, of all, with the exception of the Acotyledons, it is with much pleasure that I acknowledge the able and willing assistance that has been rendered me by my friend P. Lindsay, Esq. That part must be considered as a joint production, and we share down the merit, or are responsible for the defects, which it may be found to contain. Of any thing original, however, as to matter, little can be attributed to ourselves, the difficulty has been to select with care from materials which he scattered in the various productions and manuals of Linnæus, Jacquin, DeCandolle, Martel, Richard, and lastly, though among the very first in point of value, those of our learned countryman, Mr. Brown. But it must be observed, that although the name of some authors is in most instances added to the characters of the orders, we nevertheless have used our discretion in sharing these characters so as to make them suit our purpose. Far by generally uniting with distinction as only apply to entire European genera, we flatter ourselves that the subject has become considerably simplified, without any disadvantage to the student. In those cases where no name is cited we must be considered as solely responsible.

FLORA SCOTICA.

PART I.

CONTAINS

GENERIC AND SPECIFIC CHARACTERS, WITH DESCRIPTIONS
AND REMARKS OF THE 24 FIRST CLASSES OF THE

LINNÆAN SYSTEM.



Flora Scotica.

I. MONANDRIA.

I. MONOGYNIA.

1. *SALICORNIA*. Perianth single, turbinate, fleshy, entire. Stem, 1 or 2. Fruit (divided) included in the enlarged perianth.
2. *HIERACIUM*. Cal.* superior, forming a slightly elevated margin to the Corolla. Cor. 6. Fruit a 1-seeded Nut,
(*Clara, Creta, Zosteræ, Moscov. Fabriciæ rubra, Tiliand. Adenilla ar., Tora.*)

2. DIGYNIA.

(*Callitriche, Moscov.*)

I. MONOGYNIA.

I. SALICORNIA.

1. *S. herbacea* (julated *Glaucocory*), stem herbaceous erect, articulations compressed and somewhat thickened upwards notched, spikes cylindrical slightly tapering at the extremity. *Lichtf. p. 66. S. B. t. 416 (S. arvens), et t. 2473 (S. procumbens).*
HAB. Salt marshes near the coast, plentiful. Fl Sept. ☉.
Ploetaceous, much branched and jointed, articulations cylindrical or only a little thickened upwards. Spikes of fructification lateral and terminal, their articulations scarcely longer than broad. At the base of each articulation, on two opposite sides, a cluster of three flowers, each flower composed of a single turbinate, fleshy perianth, apparently quite closed at the top, and pinned, as it were, by the small br- or solid styles and the single or two stamens; when two, each appears in succession.
2. *S. radicans* (creeping-rooted *Glaucocory*), stem woody prostrate and rooting, articulations cylindrical spreading and notch-

* I have not the term "Calyx," though there is but one coming to the flower, rather than "single Perianth," in opposition to my general rule, because this genus belongs to a natural family whose flowers are furnished both with calyx and corolla; so that the absence of the latter, in this instance, seems to be the effect of abortion.

ed at the top, spikes oblong obtuse. *R. B. t.* 1691. and *t.* 2467. (*S. fruticosus*.)

Sea-coast near Montrose: *D. Don* 17 Aug. Sept. γ .

Differs from the foregoing in being perennial, in its long, straggling branches and short spikes. Stam. usually two. The various species of *Salicornia* are used in the south of Europe and northern coast of Africa in the manufacture of alkali, whence their English name.

2. HIPPURES.

1. *H. vulgaris* (Mare's-tail), leaves whorled linear. *Lighth.* p. 76. *S. B. t.* 763.

Fls. Ditches and stagnant waters. New Edinb. and in Bay, by the sides of Lochs, *Lighth.* West end of Duddingston Loch, *Edinb.* Mouth. Cardo-Simple Loch near Glasgow, *Hopk.* About Fife, *G. Don.* Loch of Clunie, and mouth of Borechelly, *Mr. Arnott.* *Fl. Scot.* γ .

Stems erect, simple, jointed. *Stems* of about eight leaves. Flowers at the base of each of the vegetative leaves, of the most simple structure. Germen sessile, inferior, the calyx forming a slightly elevated rim on the top. From the inside of this calyx arises a single stamen, at first shorter than the filiform style, but soon equalling it in length. *Stamen* very large, of two rounded lobes, in an early stage having the style between the lobes. *Stam.* fixed to the top of the cell of the pericarp, and then inserted.

II. DIANDRIA.

1. MONOGYNIA.

* *Pericarp* double (having Cal. and Cor.), inferior, monopetalous, regular.

1. *LILOTHESUM.* Cor. 4-lobed. Berry 2-celled, with the cells 2-seeded.

** *Pericarp* double, inferior, monopetalous, irregular. Seeds included in a distinct pericarp (*Angiospermum*).

4. *YERONICA.* Cor. 4-lobed, rotate, lower segment narrower. Caps. 2-celled.

5. *PASQUILLA.* Cal. 4—3-lobed. Cor. sagittate, spurred. Caps. 1-celled.

6. *URACULIARIA.* Cal. 2-lined, equal. Cor. personate, spurred. Caps. 1-celled, opening with a circular fissure.

*** *Pericarp* double, inferior, monopetalous, irregular. Seeds naked (imperfect with the pericarp, *Gymnospermum*).

7. *LYCOPUS.* Cal. tubular, 3-lobed. Cor. tubular, *Stam.* nearly equal, 4-lobed, upper segment broader, and notched. *Stam.* distinct, simple.

8. *SALVIA*. Cal. 2-lipped. Cor. deepest. Filaments attached laterally to a footstalk*.

***** Perianth double, superior.

9. *CROCUS*. Cal. 3-lobed. Cor. of 2 petals. Caps. 3-lobed. Cal. with 1 seed.

***** Perianth single or none.

10. *FRAXINUS*. Cal. 0, or 4-lobed. Cor. 0, or of 4 petals. Caps. 2-lobed, 2-seeded, compressed, and foliaceous at the extremity. Seeds solitary, pendulous. (Flowers polygamous.)

9. *LEIRIA*. Perianth single, monophyllous, acrothecaceous, un-ecious. Fruit a Utricle.

10. *CLAUSTRUM*. Cal. Glume of 1 valve, 1-flowered, indurated, outer glume sterile. Cor. 0. Fruit a Nut, with a loose external case (Episcory), destitute of bristles at its base.

(*Sclerocarpus*, MORANDI. *Sclerocarpus affinis* and *Erioph. aff.*, TAYLOR. MORAND.)

2. DIGYNIA.

11. *ANTHEMANTHEMUM*. Cal. Glume of 2 valves, 1-flowered. Cor. Glume double, each of 2 valves ant. united; cal. small, sessile.

1. MONOGYNIA.

1. *LEUCOSTRUM*.

1. *L. vulgare* (P. leaf), leaves of 0, also lanceolate somewhat cuneate, petiole compact. *Lightf.* p. 72. *E. B.* 4. 764.

Hab. Hedges, not common about Hamilton, *Lightf.* About Alva, between Kilmory and Stirling. No flower. *JE July.* 4.

Leaves opposite, sessile, entire, more or less obtuse, running through the middle of the weather for cold. Flowers small, white. Bark black, glabrous.

2. *FRAXINUS*.

1. *F. excelsior* (romanus *JE*), leaflets lanceolate acuminate serrate, bases dentate of petiole. *Lightf.* p. 641. *E. B.* 4. 1092.

Hab. Woods and hedges. *JE May.* 4.

One of the tallest of our trees, remarkable for the waving aspect of the extremities of the lower pendent branches in old plants. Leaves pinnated with an odd one. *Lightf.* 12—13. A variety (?) is found, rarely in England, with many entire leaves, the *F. heterophylla* of authors. In *F. excelsior* flowers polygamous, clustered, depending be-

* The structure of the stamens in this genus is very curious, but is not here correctly described. Reason mistakes them as having a branching filament, one division ascending and bearing one cell of an anther, the other shorter, often inflexed bearing the rudiment of another cell.

larger leaves, brighter blue flowers, and shorter style, it is known from all the varieties of *F. vireps*.

3. *F. australis* (Blue Rock Speedwell), raceme lax five-flowered corymbose, upper leaves oblonga-obovate subcuneate, stems spreading, capsule ovate longer than the calyx. *E. B.* t. 1027.

Hab. Rocks on mountains, very rare. Ben Lawers, G. Don and Mr. J. Mackay. Mull Gairloch, Broadalbin, Mr. Brown. Fl. July. N.

Stems woody, very straggling, flowering branches long, ascending, lower leaves shorter than the upper ones, very obtusely serrated below the point:—In these respects the figure in *E. B.* does not accord with my specimens. Corolla (rather than raceme) with from 3 to 7 flowers, in fruit lengthening into a short pedunc. Pedicels much longer than the floral leaves. Corolla deep and brilliant blue, by far the most beautiful of the genus. Cal. in fruit deep, oblongo-obovate segments, more or less divergy. Capsule very large and ovate, the two valves frequently parting some way down from the apex, so as to appear 4-valved.

4. *F. frutescens* (Flesh coloured prominent Speedwell), raceme many-flowered subspike, upper leaves oblong ovate, stems prominent, capsule ovate scarcely longer than the calyx. *E. B.* t. 1028. Don's Fl. Scot. 202.

Hab. Scotland, the River Dr. Walker. Has been found on Ben Lawers, &c. in *E. B.* Mr. Don supposes Dr. Walker gathered it on Ben Cromach, and that the *F. australis* was mistaken for it on Ben Lawers; so that the identity of this plant as a native requires to be confirmed. Fl. July, August. N.

Stems less straggling at the base than the last, flowering branches longer, but never as large as the native roots in Switzerland as the figure in *E. B.*, nor so hairy. Indeed it approaches very near to *F. vireps*, especially the five-flowered varieties, so much so, that, except what is given in the above specific character, I can point out no further marks of distinction than the flesh-coloured blossoms. Linnaeus and Haller supposed them to be varieties of each other. Dr. Candolle questions if they are permanently distinct, but Schrader, Winklerberg, and Smith, high authorities, wonder that there ever should have been a doubt of their right to rank as species.

** *Spikes or Racemes axillary (plants perennial)*

5. *F. rotundifolia* (Marsh Speedwell), racemes alternate, pedicels divaricated, leaves linear somewhat toothed, stems nearly erect. *Lichtf.* p. 74. *E. B.* t. 789.

Hab. Bogs and sides of ditches, not uncommon: as in Kennair and Pond bogs, and about Frankfield and Hugganfield Lochs, near Glasgow, Hogg, who has also found a hairy variety at Pond South side of Duddingston Loch, Mearns. Marries about Edinburgh, Fortalice, Kilmac-shire and Angus-shire, Mr. Arnott. Fl. July. N.

Racemes very rarely opposite. Pedicels or partial bractlets reniform.

* It has been planted by Dr. Walker on a garden wall at Collington, Edinburgh.

ably descending; when heading both quite reflexed. Capsule large, difform, of two flattened suborbicular lobes. Plant right to ten inches high. Stems dark-coloured, with darker black veins.

6. *V. Anagallis* (Water Speedwell), racemes opposite, leaves lanceolate serrate, stem erect. *Lichtf.* p. 73. *E. B.* t. 768.

Hab. Ditches and watery places*. Kings Park, Edinb.; and in ditches at Morton-hole, Mearns. Dornoch and Forth, Mr. Abbott. *Fl.* during summer. *Y.*

Intermediate as it were between *V. arvensis* and *Rivini*, yet decidedly distinct from both. Stems succulent, a foot or more in height. Leaves varying somewhat in width. Racemes long, many-flowered. Petals short, never reflexed. Flowers bluish or purplish.

7. *V. montana* (Broadleaf), racemes opposite, leaves elliptical obtuse subversate glabrous, stem procumbent throwing out roots at the base. *Lichtf.* p. 72. *E. B.* t. 655.

Hab. Ditches and water-courses. *Fl.* Summer months. *Y.*

Whole plant glabrous and succulent. Racemes of many bright blue flowers.

8. *V. officinalis* (common Speedwell), flowers spiked, leaves broadly ovate serrate rough with short thick pubescence, stem procumbent very pubescent, capsule obcordate deeply notched. *Lichtf.* p. 72. *E. B.* t. 765.

Hab. Woods and pastures, common. *Fl.* July. *Y.*

Stem half a foot to a foot long, erect and rising below.

9. *V. hirsuta* (small hairy Speedwell), flowers spiked, leaves ovato-lanceolate acute slightly serrated with a few scattered hairs, stem procumbent glabrous below, capsule obcordate entire. *Hugh Fl. Scotl.* p. 2. *F. setigera*. *D. Don, Descr. of rare Plants of Scotl.* p. 4.

Hab. District of Carrick, Ayrshire, in dry brackish places, Mr. James Smith. *Fl.* June. *Y.*

- It is not without considerable hesitation that I have published this as really distinct from *V. officinalis*. The following characters however appear to be permanent, even in cultivation. Its whole length does not exceed two or three inches. Stems glabrous below. Leaves ovato-lanceolate, often quite lanceolate, entire, or slightly serrated, with only a few scattered hairs. Racemes long, many-flowered. Calyxes, perianth and bractlets longer than in *V. off.*, much less hairy. Segments of the Cal. blunt and narrow. Capsule almost glabrous, not notched at the extremity. The perianth-stalks upon which capsule is held by Mr. D. Don, is the same in *V. off.* The discovery of this curious little plant is due to Mr. James Smith, a very able and intelligent botanist, of the Nursery-ground, Merchiston-Grove, Ayr. 10. *V. montana* (Mountain Speedwell), racemes few-flowered, leaves ovate acute pointed serrate, stem hairy on all sides. *Lichtf.* p. 74. *E. B.* t. 768.

* Not included in the *Fl. Scotl.*, and probably rare in Scotland, though common in England. It is not found in England.

HAB. Moist woods, not very common. Douglas, near the river, Lightf. Longside wood, Chagrin, De Roux. Woods, Castles crags, Glasgow, Mose. Arden and Logten woods about Roslyn, Nisgah, Campbell and Castles, Mr Murray. Church, Klusken-shire, Mr. Arnot. *R. June.* ♀.

Stem a foot or more in length, weak, trailing. Leaves large, slightly hairy. Flowers few, pale blue, veined, in loose racemes; pedicels long. Caps. large, twice the size of the calyx, of rather broader lobes, flat, ovate at the margin and ciliated.

11. *V. Chamaedrya* (Germander Speedwell), flowers racemed, leaves ovate obtuse sessile lacinio- serrate, stem bilaterally hirsute. *Lightf. p. 74. E. B. i. 628.*

HAB. Woods and pastures, common. *R. May, June.* ♀.

Stem procumbent, a foot long, with a hairy line running down on each side, and short lines taking different sides between each pair of leaves, or decussate. Leaves serrated and hairy, upper ones cordato-ovate. Racemes long, of many large pale, but bright blue or purplish flowers, sometimes white. Caps. shorter than the calyx, obcordate with lobes resembling the preceding, but very distinct in essential characters.

12. *V. Affinis* (smooth-leaved Speedwell), flowers densely spiked, leaves ovate subterraced rigid and as well as the procumbent stem perfectly glabrous. *Mill. Delph. p. 8. D. Don, N.E.S. descr.*

HAB. Mountains in Angus-shire, G. Don. *R. June, July.* ♀.

A valuable addition to our British Fernox, nearly allied to *V. affinis*, but differing in the total absence of every kind of pubescence or roughness on the stem and leaves, and in the very dense spike of brilliant blue flowers.

*** *Flowers solitary, solitary (plants annual).*

13. *V. aquatica* (procumbent Speedwell), leaves (all) petiolate cordato-ovate lacinio-serrate shorter than the flower-stalks, stem procumbent. *Lightf. p. 73. E. B. i. 783.*

HAB. Fields and waste places. *R. April to July.* ♂.

Plant 2 to 4 inches in length, slightly hairy. Flower-stalks longer than the leaves, recurved when bearing fruit. Cor. small, bright blue. Caps. of two large lobes, pubescent. Seeds large, few.

14. *V. cretensis* (small Speedwell), leaves cordato-ovate serrate the lower ones petiolate, basal leaves sessile lanceolate longer than the flower-stalks, stem nearly erect. *Lightf. p. 74. E. B. i. 734.*

HAB. Fields and walls. *R. April to July.* ♂.

Height and size of the preceding, or rather smaller, and often mistaken for it, though more from the similarity of the name, as Curtis well observes, than from any likeness of character. Flowers sessile or nearly so. Caps. obovate, much compressed, ciliated.

15. *V. holstii* (Ayr-leaved Speedwell), leaves cordato-ovate mostly 5-lobed, calyxine segments variate ciliated, stem procumbent. *Lightf. p. 76. E. B. i. 784.*

IIIa. Petals and leafy-bracts, common. Fl April to July. ①
 Leaves weak, proscanderi. Leaves rather fleshy, slightly hairy, ter-
 minated into the longest; upper leaves sessile. Petioles longer than
 the leaves, recurved when bearing fruit. Cor. pale blue with darker
 veins. Caps. of two turpid glabrous lobes. Seeds large, two in each
 cell.

3. PINGUICULA.

1. *P. vulgaris* (common Butterwort), upper cylindrical acute as
 long as the veinless petal, upper lip 2-lobed, lower apt to
 three unequal oblique segments, *Lichtf.* p. 76. *E. B.* i. 70.

IIIa. Marshy places and wet sides of mountains, common. Fl June ②.
 Whole plant covered with minute crystalline raised points. Leaves
 reddish, ovate, fleshy, the margins irregularly revolute. Scapes angle-
 flowered. Flowers drooping, purple, pale hairy. Stem two, short,
 white, thick, curved; one on each side the rounded ground. An-
 thers one-celled, ventral. Style short. Stigma very common, large,
 expanded, fixed at the margin and spurred behind, covering the an-
 thers with its broad disk, and bent down over them. Caps. ovate,
 one-celled, bending half-way into two short valves. Seeds nume-
 rous, small, fixed to a central column or receptacle.—Near *P. grandiflora* of *E. B.*, but that is twice as large, especially in the flower,
 which is beautifully veined. In the form of the corolla there un-
 doubtedly appears to be little or no difference.

2. *P. Lunationis* (pink Butterwort), upper obtuse curved shorter
 than the corolla, divisions of the petal nearly equal, leaves and
 scape hairy. *Lichtf.* p. 77 (*P. albina*). *E. B.* i. 143.

IIIa. Marshes and wet moors towards the north-west coast of Scot-
 land and the lakes, not uncommon. Isle of Skye, *Lichtf.* Deane and
 Arnes, *Mr Murray*. Isle of Mull and west coast of Ross-shire.—
 but no where have I seen it so plentiful as in Sutherland, upon the
 wet moors adjoining Cape Waul, growing with *Arctostaphylos* and
Juncus maritimus *multicaulis*. Fl July, August. ②.

Black smaller than, and altogether very different from, the preceding.
 Leaves far less succulent, marked with purple reticulated veins.
 Cor. with a faint purple tinge; throat yellow. Found only in For-
 tugh, Scotland, Ireland, and very rarely in England. In our island,
 confined wholly to the western side.

4. UTRICULARIA*.

1. *U. vulgaris* (greater hooded *Nitell*), upper convex, upper
 lip as long as the projecting palate, lower pinnate-nerved.
Lichtf. p. 77. *E. B.* i. 244.

IIIa. Shales and deep pools. Fl June, July. ②.

* The British species of this highly curious and beautiful genus are all
 aquatic—three roots, stems, and often leaves being furnished with numerous
 spongy, reticulated vesicles, which, according to Heyner, are filled
 with water till it is necessary the plant should rise to the surface and expand
 its flowers above the fluid. The vesicles are then found to contain only air,
 which again gives place to water when the plant appears to open its seeds
 to the bottom.

Stems much branched. Stems prostrate in the water. Leaves capillary, subuloid with minute bristles at the margin, mixed with the vesicles. Scape erect, 4—5 inches high, 5—8-flowered. Flowers in a raceme, large, bright yellow. Lower lip convex, much longer and broader than the upper one, and having a very projecting point closing the mouth. Sipe bent down, short. Anthers curved, thick, resembling those of *Pinus*. Stigma large, plain, somewhat. Ovary globose.

2. *U. intermedia* (intermediate headed Millfold), sipe convex, upper lip twice as long as the palate, leaves tripartite their segments linear dichotomous. *E. B. t. 2453.*

HAB. Ditches and deep pools. In a ditch by the side of Resaca Lake, four miles east of Fortu, D. Don. Probably in a marsh at Pasa and Robinson, Glasgow, *Alga*, since that gentleman found upon the plants there little green balls or bulbs, the germs of future individuals, a mode of propagation considered peculiar to this species. *Fl. June, July. M.*

It is smaller than *U. vulgaris*, the flowers are of a paler color, and have a longer upper lip. The stems are more leafy, and the vesicles more distinct from the leaves. The latter are broader, lower, imbricate, with the segments again dichotomous, the margins bristly.

3. *U. minor* (lower headed Millfold), sipe extremely short, obtuse headed upper lip as long as the palate, leaves tripartite the segments linear dichotomous. *Lightf. p. 78. E. B. t. 2454.*

HAB. Ditches and pools, rare. Cerritos in San, *Lightf.* Tort-pia, east side of Black Loch, Richmond, Dumfries-shire, Dr. Barrington. Loch near Kilpatrick, *Heph.* Tort-pia, Rarchoy, tall, *Edinh.* *Alga*. *Fl. June, July. M.*

Still smaller than the last. Flowers mixed with the leaves. Leaves globose at the margin. Flowers 3—5, very pale yellow. Sipe scarcely any. Lower lip almost plane, paler rather smaller, not closing the mouth, equal in length to the upper lip.

7. LYCOPUS.

1. *L. europæus* (Water Hound), leaves deeply sinuate serrate. *Lightf. p. 79. E. B. t. 1163.*

HAB. Ditches and river-banks (not in *Fl. Glou.*) Margins of Loch of Linnore, Fife-shire, D. Don. In Arden, Devises, Pontefract, *Mr Murray. Fl. June, July. M.*

Stems two feet, erect, four-sided, as in all the *Clas. Dytiscæ* and *Ord. Gynæce* (*Lobelia* *Jun.*), to which very natural family it is and the following genus belong, though placed here in consequence of their having but two stamens. Leaves opposite, nearly sessile, large, ovate-lanceolate, rugose, very deeply sinuate-serrate, almost pennatifid, especially the lower ones. Flowers sessile, in dense whorls at the base of the superior leaves, whitish with purple disk, hairy within.

2. SALVIA.

1. *S. verbenacea* (wild English Clary), leaves serrate sinuate, corolla narrower than the calyx. *Lepch.* p. 79. *K. B. t.* 154.
 Has. Flowers and buds, rare. Sal-dary mags, and bush entering Kibildity from Dnyari, *Lepch.* Burefiland and near Pritypor, Ednab, Mung. *N. Jona.* 2.
 One or two feet high. Lower leaves petiolate, acute, lobed or sinuated and crenate rather than serrate; upper ones sessile, more acute, less lobed, but deeply serrated; all regions, veined. Bractes two under each whorl, ovulate, acute, entire, ciliated. Cal. hairy, segments mucronate. Cor. small, purple, ringed. Upper lip convex, compressed. Lower lip three-lobed, middle lobe large.

3. LEMNA*.

1. *L. fruticosa* (Joy-Jawed Duckweed), fronds thin elliptic-lanceolate emarginate at one extremity at the other sessile, roots solitary. *Lepch.* p. 337. *K. B. t.* 155.
 Has. Clear stagnant waters, as in Duddington Loch, *Dr. Porras* in *Lepch.* *N. Jona.* July. 3.
 The most delicate of the genus. Fronds one-half to three-fourths of an inch in length, petiolate at the margins, articulated. The young fronds, which are constantly produced from the lateral veins in this, as in all the following species, are of exactly the same shape as the parent plant, and are again prolific before they are detached. A frond may thus be seen to be triply pinnate with its offspring.

* A most singular genus, whose characters have not been at all accurately defined by any author. I have been fortunate in making with two species, *L. fruticosa* and minor, in all stages of frond nutrition, a more complete analysis of which than has yet been given I hope to publish soon in the *Pl. Lond.*—All the species are aquatic, floating on the surface or sinking only when the seed is ripe, and the plant dying away. Fronds (for I must consider the whole plant, from which spring the flowers, as a leaf) sessile, ovate or orbicular, compressed, bilobed or thick and succulent, from the centre beneath diverging out one or more long slender roots, which are terminated by a starchy-like appendage, resembling the calyx of a rose. The margins of the fronds at one extremity, or at each side, have a slit in which numerous are produced as more distinct, cellular Osseous (and this is their common method of increase), which then grow into perfect fronds, and thus fall away, one single flower consisting of an orbicular, membranaceous, monophyllous perianth, from a small opening in the top of which the stigma is pushed out, and which bursts irregularly as the stamens become developed. There are two or three (rarely twofold) anthers of two rounded lobes, springing axially vertically each into two lobes. Germen reniform, compressed, enclosed on one side, tapering into a style about its own length, and terminated by a flatish rather expanded stigma. Fruit a drupe, three-veined oblong, compressed, mucronate at the top, on which is the short persistent style. Anthers, very hard, oval, lying horizontally in the throat, and fixed by its lower side. Style oblong, monostylous, hastated, central, terminated by a whitish, fleshy stigma.

2. *L. minor* (lesser *Dianthus*), fronds nearly erect compressed, roots solitary. *Léglif.* p. 537. *E. B.* i. 1033.

Hab. Stagnant waters, common. *R. July.* ☉

About a line or a line and a half long, of a rather thick, succulent and firm texture, slightly convex beneath. The most abundant of all, increasing prodigiously by Gemmae; rare in *fr.* The young fronds constitute the *L. arvensis* of French authors.

3. *L. polyrhiza* (greater *Dianthus*), fronds obovate-rotundate compressed, roots numerous lateral. *Léglif.* p. 535. *E. B.* i. 1034.

Hab. Stagnant waters. *Fructus unknown in Britain.* ☉

The largest species of all, half an inch in length and nearly as broad, succulent, firm and finely striated; a little convex beneath, where it is especially of a purple colour. Roots numerous from one point.

4. *L. græca* (gibbous *Dianthus*), fronds obovate nearly plant above hemispherical beneath, roots solitary. *E. B.* i. 1032.

Hab. Stagnant waters, rare. Located at Dindliprion Loch, Edinb., *Altogether R. June.* ☉

Size of *L. minor*, but readily distinguished by the gibbous or even hemispherical underside, which is pellucid, beautifully cellular and appearing reticulated; upper surface plane, green, compact.

10. CLADIUM.

1. *C. Martiana* (strictly *Scop-rus*), perianth much divided leafy, spikelets capitate-globose, calyx notched leafy, margins of the leaves and bract rough. *Br. Prodr.* p. 235. *E. B.* i. 940 (*Scheuch Martiana*).

Hab. Bog of Reeston, near Forfar, G. Don, but now destroyed as well as *Eroph.* etc. by the draining of the moss, R. Don. *R. July, August.* ☿

Habit very different from *Scheuch*, as is the fruit, being a nut with a remarkably thick shell, whose brown and glossy surface or a sternal skin separates readily from the succous part. Plant 2—5 feet high, leafy, leaves remarkably rough, almost prickly at the edge and keel. Gemmae erect, linear, 6—7 in an acute spikelet, lower ones longest, two smallest bearing flowers. Stem leafy. Stigma three. One flower becomes perfect and produces a fruit almost as large as the spikelet.

2. DIGYNIA.

11. ANTHOXANTHUM*.

1. *A. odoratum* (sweet-scented annual Grass), panicle spiked oblong, flowers upon short footstalks and longer than the awns. *Léglif.* p. 54. *E. B.* i. 647.

Hab. Meadows and pastures. *R. May, June.* ☿

* *A. Grass*, named from its affinity in consequence of the number of the stamens.

A foot high, small (when on the act of drying) like *Windroff* (*Agrostis albastris*), and giving the well-known scent to new-made hay. Leaves short. Panicle compact, spiked, yellow in age. Flowers lanceolate, valves of the cal. unequal, very sharp-pointed, slightly pubescent; valves of the cor. are as long as the smaller valve of the cal., very obtuse, hairy, brown; one with a straight awn from the back, the other with a twisted awn from near the base, and are very small; valves membranaceous, obtuse, equal.

III. TRIANDRIA.

I. MONOGYNIA.

* *Flowers superior.*

1. *TRIGLOCH*. Cal. involute, at length unfolding into a feathery pappus. Cor. monospetalous, 3-lobed, glabrous, as spurred on one side at the base. Fruit covered with the feathery pappus. Seed 1.
2. *PAPAVER*. Cal. toothed. Cor. monospetalous, 3-lobed, glabrous on one side at the base. Fruit 3-lobed, 2 generally abortive.
3. *IRIS*. Perianth single (Cor. of *Arch.*), 6-lobed, petalous, each alternate segment reflexed. Stigma petaliform.

** *Flowers inferior, glomerous.*

4. *SCORPUS*. Cal. Glomer of 1 valve, imbricated on all sides, the exterior ones smaller, sterile. Cor. 0. Fruit naked, or with bristles at its base.
5. *SCIRPUS*. Cal. Glomer of 1 valve, 1-flowered, imbricated on all sides, 1 or 2 of the outer ones sometimes sterile. Cor. 0. Fruit naked or with bristles at the base.
6. *ELOCORHYZUM*. Cal. Glomer of 1 valve, 1-flowered, imbricated on all sides. Cor. 0. Fruit with very long silky hairs springing from the base.
7. *NAUSETIA*. Cal. 0. Cor. of 2 valves.

2. DIGYNIA.

* Calyces 1-flowered (except *Arcuate Pinguicula*).

† *Flowers perfect* (such having *Androe* and *Pistis*).

+ Cor. of 1 valve.

1. *ANEMONIFLORUM*. Cal. 2-valved, valves nearly equal, acute, united at the base. Pistle of the Cor. united at the base.

+ + Cor. of 2 valves.

2. *PANDERUM*. Cal. of 3 valves, single flowered, the third valve very small. Seed invested with the permanent hardened corolla.

10. *PALLASIA*. Cal. of two rather unequal valves containing a double corolla. Seed* invested with the inner hardened corolla.
11. *PHLEBUM*. Cal. of 2 valves, valves nearly equal, sessile or minutely-erect, including a single awoken corolla. Seed free.
12. *MILVUS*. Cal. of 2 valves, valves vestigial. Seed invested with the permanent hardened corolla.
13. *ANACORIS*. Cal. of 2 valves, valves sessile, compressed, sessile. Cor. shorter than the calyx, slightly hairy at the base. Seed free.
14. *ARABIS*. Cal. of 2 valves (in *A. Piragmides* many-fl.). Cor. surrounded with long hairs. Seed free covered with the corolla.
21. *BERTHOLIA*. Cal. of 2 valves, valves lateral. Flowers alternate, ranged upon a jointed rachis.

†† *Flowers polygamous*.

20. *HONORATIUM*. Cal. in threes, 2-valved, valves lateral, intermediate ones perfect; lateral ones with Anthers or Pistil. Cor. 3-valved, sessile.

** *Calyces 2- or rarely 3-flowered*.

† *Flowers perfect*.

17. *AURA*. Cal. of 2 valves, unequal. Cor. 2-valved, the outer one awned above the base (rarely sessile). Flowers without any imperfect ones between them. Seed free, but covered with the Cor.

13. *MILVUS*. Cal. of 2 valves, about 2-flowered, with the rudiment of a third flower. Cor. 2-valved, sessile. Seed free, covered by the cartilaginous Cor.

†† *Flowers polygamous*.

15. *HECATE*. Cal. of 2 valves, 2-flowered. Cor. 2-valved. Anther-bearing stamens awned. Seed free, or enveloped in the membranaceous Cor.

16. *HIERACIUM*†. Cal. of 3 valves, 3-flowered. Cor. of 3 valves - the lateral flowers trinuclear; pistil 0; terminal (or central) one perfect, diandrous. Dr. in *Prod. Pl. Nov. Hall.*

*** *Calyces many-flowered*.

(Flowers all perfect, or upper flowers only sometimes imperfect.)

† *Calyx of 1 valve*.

23. *LODGEA*. Cal. lateral, 3-valved. Cor. 2-valved, sessile ses-

* In all the Grass tribe I use the almost universally adopted term of Seed for Fruit. This fruit is of that kind called a *Caryopsis*, which is where the seed is ultimately united with the pericarp so as to form apparently but one piece with it.

† - *Grass distichoides*, plants species complexus, in higher botanical or stronger provisions." Dr. J. C.

enveloping the seed, valves lanceolate, ant. with or without an awn, inserted below the extremity.

†† Edge of 2 valves

19. *SALICARIA*. Cal. 2—3-flowered, compressed, acute, somewhat awed. Cor. uniformly toothed or awned. Seed free, covered with the Cor.
20. *PEA*. Cor. 2-valved, valves sub-ovate somewhat acute, acuminate. Seed free, covered with the Cor.
21. *BAUBA*. Cor. 2-valved, ventricose, the valves cordate, obtuse, awless. Seed adnate with the Cor.
22. *DACOTYLA*. Cal. valves unequal, the larger 1-toothed. Cor. 2-valved, valves lanceolate, awless. Seed invested with the permanent hardened Cor.
23. *EUPHYSA*. Cal. lateral, in pairs or ternate, the valves nearly equal. Cor. freely enveloping the seed, valves lanceolate, ant. acuminate or lengthened into an awn. (Fl. apical.)
24. *FERRUGO*. Cal. valves opposite, unequal. Cor. of 2 valves, lanceolate, ant. one acuminate, or awned at the extremity.
25. *TRICHOCLON*. Cal. valves opposite, solitary, nearly equal. Cor. 2-valved, valves lanceolate; ant. one acuminate or lengthened into an awn. Seed adnate with the Cor. Beak squarish, toothed. (Fl. apical.)
26. *BACOTIA*. Cor. beakless, valves lanceolate; ant. one awned below the extremity. Seed adnate with the Cor. (Inner valve fringed. Sm.)
27. *AVENA*. Cor. beakless, valves lanceolate, freely including the seed; ant. one bearing a reticled awn on its back.
28. *CYANOPHYSA*. Cal. 2—3-flowered, having a persistent involucrum. Cor. valves linear lanceolate; ant. awless or awned below the extremity. Seed incorporated with the Cor.

3. TRIGYNIA.

29. *MONERA*. Cal. of 2 leaves. Cor. of 1 petal. Caps. 2-valved, 2-seeded.

1. MONOGYNIA.

1. VALERIANA.

* Corolla spurred. Stem 2. (Crotanthes, D. C.)

1. *V. rupestris* (real Pain du diable), leaves ovate-lanceolate. E. B. & L. 1833. Blak. Old world at Liverpool, Mr. E. A. Mearns. (1 first escaped from a garden, as in England. Its native country is the South of Europe.) E. July. 3.

One foot or more in height, glabrous, sometimes glaucous. Leaves, as in all the rest of the following genus, opposite, and flowers very numerous. Here the flowers are two-coloured.

¹⁰⁰ *Cuscuta gibbosa* at the base. Stem 3. (Palermon, D. C.)

2. *V. officinalis* (great wild Valerian), leaves all pinnated, leaflets lanceolate usually uniform serrated. *Lychf.* p. 85. *E. B.* t. 628.

Hab. Ditches and marshy places, and in mountainous pastures, frequent. Fl. July. ☿.

Stems 3-4 feet high, striated. Lower leaves very long, with many leaflets. Flowers pale flesh-colour. The root is warm and acrimonious and much used in medicine.

3. *V. pyrenaica* (heart-leaved Valerian), leaves dentate-serrate heart-shaped petiolate, upper ones with one or two pairs of small lanceolate leaflets. *E. B.* t. 1591. *Don's Herb. Brit. Jan.* n. 77.

Hab. Collingtree woods, Edinb., G. Don. Woods, Dalkeith, Glenc., Dr. Brown. Aberrum woods, Edinb., March. Ditches in the west of Inverness-shire, as at Elter Adam, Church, and near Duffryn, Mr. Asmat. Fl. July. ♀.

Three or four feet high, habit of *V. officinalis*, but very different in its leaves. Flowers pale rose-coloured. I can hardly satisfy myself that this species, any more than *V. rubra*, is really indigenous to Scotland. No flues of the continent, except that of the Pyrenees, can boast of it, but it has been long cultivated in gardens throughout Britain.

4. *V. draca* (small marsh Valerian), flowers dioecious, radical-leaves spatulate-ovate undivided, stem-leaves pennatifid. *Lychf.* p. 85. *E. B.* t. 628.

Hab. Marshy meadows, frequent, *Lychf.* Hops to the westward of Northwick, Mr. Reid and Monaghan. Pentland Hills, Mr. Stewart, Leithgown, Mrs. Bevil. Fl. June. ♀.

Stem erect, from 6 to 8 inches high. Leaves more or less serrated, upper lobes large. Flowers very pale rose-coloured.

2. PEDAL.

1. *V. officinalis* (Corn-salad or Lamb's Lettuce), fruit tridentate ovate-suturatae inflated glabrous, flowers capitate. *Lychf.* p. 85, and *E. B.* t. 811 [*Palermian Lacustae*].

Hab. Carn-hills and banks. Fl. May, June. ☉.

Stem sometimes a foot high, dichotomous, and, as well as the leaves, more or less succulent. Radical leaves spatulate, cuneate ovate oblong-obovate, rarely with the upper ones a little toothed. Flowers pale blue, in terminal heads, at the base of which are oblong bristles forming a kind of involucrum.

2. *V. demissa* (narrow-fruited Corn-salad), fruit sub-tridentate obpyriform glabrous, flowers corymbosae with a single flower between the upper divisions of the stem. *E. B.* t. 1379 [*Pal. demissa*].

Hab. Hedge-banks and fields. Near Craiggate-toll, 3 m. S. of Musselburgh, March. Fields about Edinb., Mr. Greville. Water of Leith, and field near Kilmahilly, Mr. S. Stewart. Fl. June; July. ☉.

This has often been confounded with the preceding species, but attention to the above characters will remove every difficulty. This is the larger plant of the two, the corolla-tubes are more linear, the upper ones more frequently toothed or even pectinate. Flowers flesh-coloured, not in heads but in loose corymbs, with fewer and narrower bracts. In the axil of the upper bract of the stem is always a solitary flower. The fruit is widely different in shape, marked with five elevated ribs, and crowned with three unequal, almost foliaceous teeth.

3. IRIS.

1. *I. Pseudoceras* (yellow Water-Iris), leaves cordiform, each alternate segment of the baseless perianth smaller than the stigma. *Lightf.* p. 56. *E. B.* i. 578.

Hab. Wetlands and marshy places, common. Fl. July, &c.

Flowers large, yellow. Roots large, horizontal, fleshy, very acid. A piece held between the teeth is used to cure the tooth-ache. In Annam they are used to dye black, and in Java mixed with copperas, to make ink. *Lightf.*

4. SCHIMMUS.

* *Calus* leafy.

1. *Sch.* affinis (white-headed Dog-rush), culm triangular, leaves lanceolate-obovate, flowers terminal sub-corymbose as long as the involucrum. *Lightf.* p. 57. *E. B.* i. 583.

Hab. Moors and boggy places, common. Fl. July, Aug. &c.

Culm 5—8 inches high, leafy, leaves sheathing at the base. Each head consists of three or four clusters of almost white flowers collected into a sort of corymbus as long or longer than the involucrum, by which it is at once distinguished. Bracts eight or ten at the base of the fruit. Stam. two or three.

** *Calus* naked.

2. *Sch. nigricans* (black Dog-rush), culm rounded, spikelets of flowers collected into an ovate cluster, involucrum of one nerve, the exterior one longer than the flowers. *Lightf.* p. 56. *E. B.* i. 1121.

Hab. Moors and boggy places, common. Fl. June, July, &c.

Culm about a foot in height, the base sheathed with the black remains of the former year's leaves. Leaves setaceous, rigid, generally shorter than the culm. Spikelets several, dark, shining, purplish-green, almost black at the base of the glumes. Length of the involucrum subulate, dilated at the base and dark-brown, the upper part greenish, one much shorter, the other generally much longer than the flower.

3. *Sch. compressus* (compressed Dog-rush), culm rounded, spike distichous shorter than the single involucrum, spikelets many-flowered, lower plane. *Lightf.* p. 57. *E. B.* i. 761. (*Silene* Caribæa, *Willd. et Nees*. *Calus* uliginosa, *L.*

Hab. Bogs, rare. By the side of Loch na Bhe, *Lightf.* Dumbarton

Castle, by the direct's side, Mr. Falden. Neighbourhood of Berks-
with Castle, Mough. Fl. June, July. Y.

Best cropping: Culm 6 or 8 inches high, covered for almost half its
length with the very long sheathing leaves of the leaves. Leaves
about as long as the culm, linear, acuminate. Spike oblong, with
an oblong involucre at its base, which is longer than the spike. Spike
lets placed in two ranks, oblongo-ovate, shining, ferruginous, 3—6-
flowered, glumes all but the lower ones fertile, so that this is perhaps
as well as the following species, rather a *Scirpus* than a *Sclerurus*.

4. *Sc. rufus* (Irish Bog-rush), culm rounded spike distinctly
longer than the involucre, spikeless few flowered, leaves se-
taceous attenuated. E. H. t. 1010. Lightf. p. 88 (*S. fir-
repens*), and t. 24 (as *S. compressus*, var.).

Has. Moorish places, rare. Isle of Mull, Lightf. Dunbar, Arran,
Nays, Mr. Mackay. Fife and Angus-shire, G. Don. Near Craig-
Garry. On the coast, 2 m. east of S. Queensferry, Mough. Gail-
lon Loch, Schieb. Mr. Gravelle. Bessing, Scotland, Rev. Mr.
Finlay. Fl. July. Y.

Allied to the last, especially in the distinctness of the spike; but much smaller.
Leaves much shorter and narrower, never plane. Spikes
ovate, dark brown, of 5—6 spikelets, each of 3—4 flowers. Glumes
more obtuse.

5. SCIRPUS.

* Spike solitary.

† Culm simple.

1. *Sc. cuspidatus* (Irish-stalked Club-rush), culm rounded
sheathing terminating in the rudiments of leaves, two outer
glumes as long as the spike involucre, stigma 3. Lightf.
p. 87. E. H. t. 1029.

Has. Moors every where, most abundant. Fl. July. Y.

Culm simple, 3—8 inches high, clothed at the base with the old
sheathing scales, upper sheaths ending in a short imperfect subu-
late leaf. Spike small, pale brown, ferruginous, the two large outer
glumes caespitose, green at the base, the rest rather acute. Fruit
surrounded by six bristles, tipped with the very prominent base of
the styles. Principal food of the sheep in the Highland mountains
in the spring. Lightf.

2. *Sc. paniculatus* (obovate-headed Club-rush), culm rounded,
sheaths leafless, spike ovate naked, glumes obtuse nearly equal,
two outer ones the longest but shorter than the spike, stigma 3.
Lightf. p. 1028. E. H. t. 1122. (*S. Brachyotus*, Willd.).

Has. Highland mountains, as upon Moighyry in Brecklathane, Dr.
Stewart. Linn. Links, Mr. J. F. Mackay. Near Mullach Castle,
N. of Glasgow: and on the Orkney Hills plentiful. Dr. Don. Loch-
loven and Clack hills and sides of mountains in Brecklathane fre-
quent, Mr. Stewart. R. Aug. Y.

In general appearance very near *S. palustris*, but much smaller and
slenderer. Spike of fewer flowers, 3—6. Glumes more obtuse.

Stigma 3. Style swelling at the base. Fruit with 3—4 bristles at the base.

3. *Sc. palmata* (Marsh Club-rush), culms rounded, sheaths at the base leafless, spike oblongo-ovate naked, glumes nearly equal in size, stigma 2. *Lightf.* p. 83. *E. B. t.* 131.

3. *minor*, smaller, spike frond-shaped, glumes deeper brown. *S. multiflorus*, *E. B. t.* 1167.

Rare. Ditches and marshy places, frequent. 3. Isle of Skye, Mr. Mackay. Various parts of Scotland, &c. Dec. 31. July 3.

Culms many from the same root, 5—12 inches high. No leaves at all. Spike many-flowered, brownish, margin scarious, 2 outer ones sterile, dense, inner ones more so. Fruit crowned with the swelling base of the stigma, which constitutes, in conjunction with the almost constant presence of its bristles at its base, the genus *Phlox* of Mr. Brown. Bristles 4—5 around the fruit.

4. *Sc. acuminata* (Great Club-rush), culms compressed grooved, sheaths leafless, spike ovate acute naked (no involucrum), glumes acuminate, stigma 3, fruit without bristles. *Lightf.* p. 88. *E. B. t.* 749.

Rare. Sides of lochs, even under water, and marshy places; about a mile N. W. from Larvick, Dr. Fenzl in *Lightf.* Lochleven, and Loch W. of Dunsing, Mr. Brown. Loch of Clunie and Stannet Loch, Mrs. W. M'Gavin. 31 July, Aug. 2.

The most slender and delicate of all the club-rushes. Culms 3—4 inches high, striate or capillary, naked, often without flowers. Spike small, pale brown, with a broad green nerve. Fruit oblong, beautifully impressed with points in lines, tipped with the spherical base of the style.

†† Culms branched

5. *Sc. fluitans* (Floating Club-rush), culms rounded leafy fascicled, spike ovate naked (no involucrum), glumes rather dense, stigma 2, fruit destitute of bristles. *Lightf.* p. 88. *E. B. t.* 216. *Polypus fluitans*, Dr. Fenzl, *Fl. Sc. Hall.*

Rare. Pools and ditches. Loch, Isle of Rum, *Lightf.* Broad Hill marshes and Rye-bing Toll Moss, Mr. Brown. 31 July 3.

Stems 6—10 inches in height, much branched, slender, jointed. Leaves linear, short, flaccid, sheathing, and thus concealing the whole stem. Prostrates, or rather the side branches of the culm, terminal and lateral. Spike small, &c., 3—4 flowers. Glumes greenish, with a surface which ranges. Fruit without bristles, and an increased base to the style, articulated as it were on the glumes. Hence the *Isoplepis* of Brown.

** Spikes very many.

† Culms rounded.

6. *Sc. lanifolia* (Ball-rush), upper sheaths leafy, culms terminal culms compound, involucrum 2-leaved. *Lightf.* p. 88. *E. B. t.* 693.

S. glaucus, smaller and glaucous. *S. glaucus*, *E. B. t.* 3321.

Hab. Margins of lakes and ponds.—*S.* Coast of Angus, G. Don. Banks of the Tay below Newburgh, and other parts of Fifehire, D. Don. Fl July 2.

Root creeping. Culm 2—3 feet high, rounded all the way up, slightly tapering, outer or lower sheaths brown, leafless, upper ones ending in a linear subulate channelled leaf 2—4 inches long. The sheaths of 2 leaflets, varying much in length; in general one is nearly as long as the culm, and ends in a green rigid point, the other much shorter and more membranous, brown. There are bristles what may be called partial involucres to the clusters of spikelets, longer than the glumes and often with a rigid point. Glumes brown, fringed, often serrulate, the nerve running up between the notch into a nerve. *Spikelets* 2—3. *Fruit* sheaths triplicate, surrounded by 3 bristles. The culms are much used for mats, chair-bortans, &c., and form an article of trade.

7. *S. setosus* (*setosus* Club-rush), culm setaceous rounded or very slightly compressed, sheaths leafy, spikelets terminal perianth, involucrum 1-leaved. *Lightf.* p. 58. *B. B. t.* 1653.

Hab. Moist grassy places, common. Fl July, Aug. 3.

Culm tufted, 2—3 inches high, slender. *Leaves* 1 or 2 with sheathing bases. *Sheaths* of 1 subulate leaflet, green, dilated at the base, erect and so appearing a continuation of the culm, having interval fourfold. *Spikelets* 1—2. *Glumes* broadly ovate, acute, smooth, brown, with green margins and nerve. *Stam.* 2. *Stigma* 3. *Fruit* broadly obovate, beautifully longitudinally striated.

†† *Culm* triangular

8. *S. maritimus*, (*Salt-marsh Club-rush*), culm leafy, spikelets terminal clustered perianth and sterile, involucres of many foliaceous leaflets, glumes with a nerve between the acute segments of a notch. *Lightf.* p. 58. *B. B. t.* 542.

Hab. Salt marshes near the coast, not uncommon. Fl July. 2.

Root creeping, often swelling into knots or tubers. Culm 2—3 feet high, leafy. *Leaves* linear but acuminate, often exceeding the culm. *Length* of involucrum variable in number and size, mostly much larger than the cluster of spikelets. *Spikelets* large, sterile, brown. *Spikelets* 3. *Bristles* 3—4 at the base of the smooth obovate-triangular seed.

9. *S. apiculatus* (*Wood Club-rush*), culm leafy, culm terminal many times expanded, involucrum of many foliaceous leaflets, glumes entire acute. *Lightf.* p. 58. *B. B. t.* 313.

Hab. Edge of Carr Barn, opposite Lochmichael, in the parish of Kilmichael, Dumfries-shire, and Kells, Wexfordshire. *Lightf.* Moist woods near Roslyn Castle. Dr. Parsons in *Lightf.* Damp woods frequent, as in woods Rothwell, Hamthorpe and Lanes, Selkirkshire and Woodhall; in a high better place is found a one with striped variegated leaves, *Lightf.* Wet woods between Laxdale and Fallowby, by the river, Moore. *Arnot* and *Greville*. Fl July. 2.

Culm 2—3 feet high, very leafy. *Leaves* broadly linear, acuminate, reaching beyond the culm. *Length* of the involucrum, 2—4, one

generally longer than the ayme. Spikelets very small, numerous, greenish. *Sigmas* 2. *Flrst* with about 6 bristles.

6. ERIOPHORUM.

* Spike solitary

† Culm naked.

1. *E. alpinum* (alpine Cotton-grass), culm triangular, leaves much shorter than the sheaths, spike oblongo-ovate. *E. B. t.* 211.

Hab. Mountain bogs, rare. *Flrst* discovered in a bog 3 m. E. of Forke, but which is now drained, by Mr. Brown and G. Don. Mountains in Herkuleshage. Mr. Sauerbille. *Fl* June 2.

Root creeping, throwing up many upright culms, 5—8 inches high, slender, with short subulate leaves from the long internodes. Spike very small, few-flowered. *Glaucis* ovate ferruginous obtuse, nerve green, on the 1—2 nerve and sterile ones expanded into a sacro. *Sims* nearly 1, sometimes wanting. *Flrst* surrounded by erect silky hairs more than twice as long as the spike.

†† Culm leaf-bearing.

1. *E. vaginatum* (Hare's-tail Cotton-grass), culm above triangular, spike ovate. *Light*. p. 30. *E. B. t.* 833. (*E. capillatum*, *Flrst* at Schred.)

Hab. Turf-bogs, not uncommon.—Pentland-hills, and Dalmsbury-hill, Edinb., Rough Apple, Argyleshire, Capl. Cornishall. *Fl* May 2. Culm, when in flower, shorter than the leaves, when bearing and much elongated, 1—1½ foot high. Leaves almost subulate-acuminate, compressed, channelled, sheathing, upper sheaths with gradually shorter leaves, the uppermost leafless and inflated obtuse. Spike large, ovate, acuminate, remarkably thin, membranaceous, yellowed, fleshy. Silky hairs of the seed twice as long as the spike.

2. *E. capillatum* (ground-headed Cotton-grass), culm rounded to the top, spike almost spherical. *E. B. t.* 2357.

Hab. Ben Lomond, by the side of a rivulet near the limits of perpetual snow, G. Don. *Fl* Feb Aug. 2.

Smaller than the last, 8—10 inches high, but stouter, with fewer leaves on the stem. Besides the different shape of the spike, the glumes are broader, more opaque, with the entire ones frequently much the largest, so as to resemble an involucrum. In other respects they are alike. *H. n.*, in all countries, a very scarce plant.

** Spikes many, pedunculated

4. *E. gracile* (slender Mountain Cotton-grass), culm trigonous channelled, spike longer than the involucre. *E. B. t.* 2405. (*E. alpinum*, *Flrst* at Schred.)

Hab. Boggy places in the mucous soil of Ben Lomond and on Glen, G. Don. *Fl* July. 2.

Marked development of this division. Leaves few, narrow, much keeled at the back, grooved or channelled on the upper side. Spikes 1—2, oblong, at first sessile, then pedunculated, longer than the involucre. *Glaucis* oblongo-ovate, greenish-brown, obtuse, membranaceous and ribbed.

5. *E. angustifolium* (common Cuten-grass), culms subtrigonal, leaves linear grooved, involucre longer than the flowering spikes. *Lightf.* p. 89 (*E. polystachium*). *E. B.* t. 561.
Hus. Moors and past-hops, very frequent. Fl. May. ♀.

This, as Dr. Schrader justly observes, is intermediate between the foregoing and following species, differing principally from the latter in the culms rounded at the base, in the narrower and channelled leaves, and simple panicle, and from the former in its larger size, longer involucre, and more acute glumes.

6. *E. polystachium* (broad-leaved Cuten-grass), culms trigonous, leaves broadly linear plane, involucre longer than the flowering spikes. *E. B.* t. 561.

Hus. Peat-bog Hills, G. Den. Common in Scotland, &c. Fl. May, June. ♀.

Distinguished by the breadth of the leaves and their plane surface. The spikes, when in seed, are on very long drooping footstalks, and then often nodded. July leaves shorter than in *E. angustif.*

7. NAIDUS.

1. *N. stricta* (Maid-grass), spike erect denser, the flowers all pointing one way. *Lightf.* p. 90. *E. B.* t. 559.

Hus. Moors and heaths, most abundant. Fl. June. ♀.

A grass of a very simple structure, growing in tufts, surrounded at the base with the remains of former years' leaves. Culms, as well as the dividing leaves, setaceous, rigid, 4—5 inches high. Spike terminal, erect, grooved, and toothed at short distances for the insertion of the florets, which are all dischrous and pointing upwards. Cal. 5. Cor. of 2 valves, lanceolate, outer one setaceous, purplish green, tapering gradually into an awn; inner one smaller, ovate, membranous. Stam. 3. Style and stigma 1.

2. DIGYNIA.

5. PANICUM

1. *P. sanguinale* (Cock's-foot Panic-grass), spike digitate, flowers in pairs around pubescent at the margin, leaves and sheaths slightly hairy. *E. B.* t. 549.

Hus. A single plant found at Dalbreth, Bpsh. A doubtful native even in England. Fl. July, Aug. ♂.

About a foot high, erect and pointed at the base. Leaves broad, and as well as the sheaths more or less hairy, hairs springing from minute, elevated, points. Culm of 2 very unequal valves, the outer most an extremely minute scale, the one opposite to it twice its size and pubescent at the margin, innermost one three the size of the second, rigid, ribbed, and pubescent at the margin. Palea of Cor. nearly equal in length, whitish, membranous.

9. ALOPECURUS.

1. *A. prostrata* (Meadow Buntail-grass), culm erect smooth,

pericarp spiked cylindrical obtuse, calyctine glumes lanceolate acute hairy ciliate at the base, awn twice the length of the corolla. *Lightf.* p. 9. *E. B.* t. 719.

Hab. Meadows and pastures, common. *Fl. Alp.* June. *W.*

Caules 1½ to 2½ feet high. Spike with silvery hairs, yellow-green colour. Glumes of Cal and Cor. in this and all the species remarkably compressed, and both are much ciliated.

1. *A. alpinus* (alpine Pasture-grass), culm erect smooth, pericarp in an ovate spike, calyctine glumes ovate abruptly acute hairy ciliated at the base, awn scarcely longer than the corolla. *E. B.* t. 1126.

Hab. Mountains about Loch na Gore in Aberdeenshire, and at Clava, Angus-shire. *G. Don.* Ben Lawers, *R. Brown*, *Rep.* *Fl.* July. *W.*

I scarcely know which of the above-mentioned Botanists has the honour of the discovery of this rare plant, of which no other station is at present known in the world. Mr. Brown gave me a specimen gathered very many years ago at Ben Lawers. Distinguished at first sight by its short ovate or rather oblongo-ovate spike. The calyctine glumes come suddenly to a point, neither gradually tapering as in *A. pratensis*, nor obtuse and truncated as in *A. procumbens*. Glumes of the Cal. at least twice as broad as in the former species; its awn scarcely reaching beyond the glume.

2. *A. agrestis* (meadow Pasture-grass), culm erect scabrous above, pericarp spiked cylindrical acuminate, calyctine glumes acute almost glabrous ciliated as far as the middle. *Lightf.* p. 91. *E. B.* t. 842.

Hab. Fields and by every water. June, July. *W.*

Well distinguished by its attenuated spike frequently of a purplish brown tinge. Cal. glumes lanceolate, acute, glabrous, or a little rough on the back and nerves. Cor. quite smooth, with the awn 3 or 4 times its length.

3. *A. grevistatus* (floating Pasture-grass), culm ascending bent at the joints, pericarp spiked cylindrical obtuse, calyctine glumes united at the base truncated slightly hairy, awn twice as long as the corolla. *Lightf.* p. 92. *E. B.* t. 1150, and t. 1443 (*A. foliosus*).

Hab. Wet meadows and marshy places. *Fl.* July, Aug. *W.*

Flowers smaller than in any other species. Glumes of the cal. very obtuse, truncate, membranaceous at the margin, ciliated at the back, scarcely hairy elsewhere. Glumes of the cor. equally obtuse, membranaceous, glabrous, varying in the length of the awn. In dry places the plant is smaller and has a bulbous root. *Moench.* The Mexican does have found the *A. foliosus* of L. But in Agave-shire and Fribourg; but I cannot find a single character to distinguish them as a species, nor even as a var. In a recent examination of original specimens from the habitat given in *E. Bot.* I observe the expanded awns, exactly as they are in *A. pratensis*; when they are exposed and have discharged their pollen, they contract in length and become of a deeper colour, which is also the

ness with *A. grisea* and authors (Huet and Gussone) figure and describe the anthers of our species as both yellow and fulvous.

10. PHALARIS.

1. *Ph. canariensis* (cantered Canary-grass), panicle spiked erect, calyxine glumes boat-shaped entire at the point, entire, of 2 valves. *E. B. t.* 1299.

HAB. Naturalized as in England, by fields and road-sides occasionally. About the sand-hills Toll-cross, Olney, Mphk. Sometimes seen about Edinb., Mr. Greville. *Fl.* July. ☼

One to two feet high, glaucous. Leaves broad. Spike large, hand-some. Glumes of the ear greenish, with deeper lines, distinctly pubescent, deeply and sharply beaked at the back. *Let. ear* of 2 small valves, inner double the size and closely investing the seed when ripe, as we see it in the yellow seeds which are the seed of Canary birds (*Frugile canaria*).

2. *Ph. arundinacea* (Reed Canary-grass), panicle erect, branches patent, leaves chancelled second, inf. cor. of 2 very minute hairy valves. *Lightf.* p. 90. *E. B. t.* 402, and *t.* 2760, *f. l.* (*arundinis coloris*, Sw. *Fl. Brit.* p. 147.)

HAB. Sides of lakes and rivers, frequent. *Fl.* July, Aug. ☼

Frequent in gardens, with variegated leaves. Very different in habit from the last, but the same in essential parts. Panicle large, rather lax, 4-5 inches long, often brownish or purplish green. *Cal. glumes* lanceolate, valves acute remarkably compressed, serrated, rough at the back. *Let. ear* of 2 extremely minute, oblong scales, with a tall or pencil of hairs at the end. *Inf. glumes* almost as long as the *cal.* lanceolate, valves unequal, much compressed, the larger one embracing the other, especially when they envelop the ripened seed.

11. PILEUM.

1. *Ph. pratensis* (pasture Cat's-tail-grass), spike cylindrical, cal. glumes truncate mucronato-erectate ciliated at the back longer than the awn. *Lightf.* p. 91. *E. B. t.* 1076.

HAB. Meadows and pastures, very common, Mphk. *Fl.* June, July. ☼

Root sometimes bulbous (*Ph. bulbosa* Willd.). Culms 1-2 feet high. Spike from 3-4 inches long, pale green, very compact, obtuse. *Cal. glumes*, as in all the species, extremely compressed, almost glaucous, acute, truncate, each valve ciliated at the back, and having the dorsal, green nerve, running out into a slightly spreading awn, scarcely half as long as the valve. Glumes of the ear small, membranous, obtuse, unnotched, the larger one rounded.

2. *Ph. alpinum* (alpine Cat's-tail-grass), spike erect-oblong, cal. glumes truncate mucronato-erectate ciliated at the back equal in length to the awn. *E. B. t.* 218.

HAB. Highest mountains. Cratzenbach, a hill above K/then. *Lightf.* Garney Moor, Ebor. Ben Lawers, E. Brown, Eng. *Fl.* July. ☼ Spike short, purple-brown.

3. *Phil. Micheli* (*Michelson Cat's-tail-grass*), panicle spiked cylindrical, cal. glumes lanceolate acuminate strongly ribbed at the back. *E. B. t.* 2055 (*Phalaris* sp. *Hust*).

Hab. Rocky parts of the high mountain of Clons, *Augur-clons*, G. Don. *Fl. July, Aug. ♀*.

Distinguished at once from the two former species, by the gradually tapering glumes. It wants the double ear, and hence *Hust* and *Willdowson* have fallen into an error in making it a *Phalaris*.

4. *Phil. armericum* (*Sea-side Cat's-tail-grass*), panicle spiked oblongo-spherate, cal. glumes lanceolate acute ribbed at the back. *Lighf.* p. 1055. *E. B. t.* 222 (*Phalaris arven.*).

Hab. Loose blowing sand, near the sea shore, *Lighf.* Sands of Barrow, G. Don. Near Barabland, Mr. Armit. *Fishery coast*, not uncommon. Mr. Green's. *Fl. July ♀*.

Culms 2—5 inches high, many from the same root, ascending. Cor. twice as short as the cal., membranous, truncated.

12. MILIUM.

1. *M. effusum* (*spreading Millet-grass*), flowers loosely panicled anthers. *Lighf.* p. 32. *E. B. t.* 1095.

Hab. Moist shady woods. By the Aqueduct Bridge, *Edwin Hamilton* and *Lenark*, High. *Roslyn woods*, Mr. Armit and Mr. Green's. *Fl. June. ♀* (G. Don.)

Culms 2—4 feet high, slender. Panicle diffuse, lax, delicate. Cal. glumes equal, ovate, concave, glabrous, or slightly scabrous, green. Those of the ear cartilaginous, very concave, at length closely covering the seed, which is the principal character that distinguishes this grass from *Agrostis*.

13. AGROSTIS.

* Outer valve of the Cor. curved.

1. *A. canina* (*Irish Bent-grass*), branches of the panicle long slender erect-petent, cal. valves unequal lanceolate rough at the back, cor. of 1 valve with a dorsal suture from below the middle, leaves linear. *Lighf.* p. 93. *E. B. t.* 1535 (*Trichodesium can.*, *Schrad.*).

α. Flowers purple.

β. Flowers straw-coloured, somewhat larger.

γ. panicle longer, slenderer, pale green. *A. gracilis*, D. Don. *MSS.* var. 11.

Hab. α. Moist heaths and mossy places, plentiful. β. wet me by Mr. Wink as gathered by G. Don, in Scotland. γ. meadows about *Ork*, *Pembroke*, D. Don. *Fl. June, July. ♀*.

Panicle lax, slender. Flowers small. Cal. valves rather acuminate, glabrous, rough on the back. Valve of the ear single! (hence the grass *Thickskan* of *Michaux*), shorter than the cal. ovate, truncate and concave, white, thin, membranous, dotted with rough points, having 4 longitudinal nerves, 2 of which (the lateral ones) often project into very short awns, between them, on the back, from

below the middle, when an awn short twice the length of the valve. Instead of the second valve of the ear, is an extremely minute tuft of hairs. Var. β . has the panicle smaller, and the flowers, in proportion, rather larger, yellow, but not so large as in the *Agr. flavescens* of Host, nor are the glumes so much ornamented. Var. γ . I cannot distinguish specifically from *A. cuneata*. — Sometimes the awn does not reach to the top of the glumes, and then it is by some called *umbellata*.

2. *A. setacea* (Bristle-leaved Bent-grass), branches of the panicle short erect, valves of the ear, unequal lanceolate rough at the back, outer valve of the ear, with a length one from the base, inner one ovate very minute, leaves setaceous. *E. B. t.* 1183.

Has. I have this mentioned in a list of British plants, furnished by Mr. R. Don, but without any particular station being given. *Fl. Ang. Y.*

This grass has a peculiarly stiff and rigid habit. Leaves numerous, bristle-shaped, glaucous. Panicle very compact, greenish brown. Outer valve of ear, membranous, with 4 nerves, the 2 lateral ones terminating in short teeth, awn arising from the base and ascending in length the larger ornamented calyptra valve. This plant was made known to the botanical world by Mr. Curtis, and appears to be peculiar to Britain. In the structure of the leaves and leaves there is the closest affinity with *Agr. repens* of the continental Botanists; but that plant is much smaller, less rigid, and the panicle is spreading when in flower and of a fine purple. May they be varieties arising from situation?

** *Cynis caudata* (or nearly so).

3. *A. vulgaris* (fine Bent-grass), branches of the panicle smoothish, branchlets diverging, outer valve of the ear, 3-nerved, ligule extremely short and truncate. *Lightf. p.* 93 (*A. capillaris*). *E. B. t.* 1671.

β . Outer valve of the ear, round.

γ . scarcely 2 inches high. *A. panicula*, *Lightf. p.* 1081, fig. is frutescens.

Has. Meadows, pastures and banks, common. *Steph. & Perland hills, March. y.* *Perland hills, Lightf. Fl. June, July. Y.*

Root creeping, throwing out many, mostly ascending, culms, 1 or 1 and a half feet high. Panicle purplish, rachis smooth and the branchlets nearly so. Cul glumes lanceolate, smooth, shining, rough on the back. Ear glumes of 2 sides, delicate, membranous, unequal valves. Outer one a little shorter than the ear, 3-nerved, tridentate, awnless in α , bearing an awn of uncertain length, but mostly short in β , arising from the central nerve, a little below the middle of the back; inner valve half as small, two-nerved, blind. I possess specimens of this species bearing the rudiment of a second flower upon a rather long footstalk in the same culm.

4. *A. sibir* (Marsh Bent-grass), branches of the panicle biped, branchlets point, outer valve of the ear, 3-nerved, ligule ob-

long. *Lichtf.* p. 80 (*A. alba*, *et stolonifera* ?); *E. B.* t. 1182 (*A. alba*); and t. 1537 (*A. stolonif.*). *Schrad.*² *Germs.* p. 200.

β. Leaves glaucous, panicle more compact, cal. glaucous (more rough on the back. *Agg. phanerostemon*, *Dr. Don.* *MSS. lanch.* Hb. Hb. and non-alba, common. β. *Lib. of Map.* *Dr. Don.* *Fl. July* 7.

Plant stouter than the last, and generally larger. Culms ascending, often rooting at the base, and throwing out runners. Panicle rather contracted, pale green or purple, bractelets present. Cal. glaucous as in *A. vulgaris*, as are those of the corolla; the outer valves have 3 nerves and as many teeth, and the inner one is only barely 2- or 3-nerved at the base, usually entire and obtuse at the extremity. In some individuals, but I know not if they are found in *Scutell.*, there is a short row at the base of the outer valve of the corolla; this is the *Agg. cuspidata* Willd., and sometimes the flowers are white-purple, which is the *A. sphaerica* Lam. It is even difficult to distinguish this plant from the last, and I have never seen any British specimens *Agrostoides* that may not be referred to one or other of these two. I feel strongly persuaded that the *Agg. stolonifera* and *alba* of *E. B.* are one and the same species, the former best agreeing with what I call *alba*, in the oblong ligule, but not according to the extremely dense erect flowers, which, on the other hand, the flowers of the latter plant of *Scutell.* are too few and lax, and the ligule is short and truncate like those of *A. vulgaris*. What may be the *Linnæa A. stolonifera* can only be determined by a reference to the *Linn. Herb.* The accurate Schæffer, I know not upon what authority, says that that is the *Agg. erectiflora* of Villars and Willd., remarkable for its bipartite culms and panicles. The famous *Flores græcæ* of Dr. Richardson and the High agrostologists, to what I have called *alba*, as I have determined by the use of specimens gathered in company with the late Dr. Richardson himself. Schæffer has, I think with great propriety, reduced the several *Agrostoides* to the two here adopted; Gaillon makes 5 of them in his *Agrost. Helv.*; yet says of them "*albo varietatibus sunt, ut, ut quædam polius, non dissimiles esse vix credimus, quædam tamen distinctius*," and Host, I lament to say, has, besides *A. vulgaris*, 2 species of this family, which appear to me to offer no decided mark of distinction³.

² I include this synonym of a foreign author because the description there referred to is the only corroboratory one I am acquainted with of what I pretend by *A. alba*.

³ Since the above was written, and when on the point of going to the press, I have received a letter from our friend, J. B. Barbeau, Esq. of Newbury, Berks, on the subject of these two *Agrostoides*, and as he expresses the wish of mutual observation, taken as well with my own, it would be doing him an injustice were I not here to answer it. "I find the greatest puzzle," he says, "in the variations of *Agrostoides vulgaris* and *alba*. The extremes of each I have well by the divergent, smooth branches in the panicle of the former, and the altogether less erect and smooth flower. The panicle branches of *A. alba* and the culms are bipartite, and the nerves of the outer valves of each marked distinctly. This also flowers out great numbers of

14. ARUNDO

* *Calypso* 1-flowered (*Colomatopsis* of authors).† *Cuscuta* arund.

1. *A. Colomatopsis* (small Reed), panicle erect diffuse, red, valves acuminate, cor. shorter than the cal. and the tube of hairs with a small terminal awn. *Egypt*, p. 106. *E. B.* t. 2159.

Hab. Shady moist places, but not common. *Egypt*. Fl. July. Y.
Two or three feet or more high. Leaves linear, acuminate. Cal. glabrous shining, purple brown. Cor. very thin and membranous. Tube of hairs silky, very appressed from their length, and giving the panicle, when in full bloom, a beautiful silky appearance.

2. *A. stricta* (smallest close Reed), panicle erect close, valves of the cal. acute, cor. about as long as the cal. longer than the tube of hairs, with a dorsal awn equal to it in length. *E. B.* t. 2160.

Hab. White Moss Marsh, 1 mile from Forth, G. Esc. Fl. June. Y.
One to two feet high. Leaves narrow, linear, when dry involute. Panicle 1—2 inches long. Cal. brown, glabrous. Cor. brownish, truncate. Awns few, short, visible on dissection.

†† *Cuscuta* arund.

3. *A. arenaria* (Sea-side Reed), panicle spiked, valves of the cal. acute, cor. as long as the cal. the awn as long as the tube of hairs, leaves involute pungent. *Egypt*, p. 107. *E. B.* t. 520.

Hab. Sandy places on the sea-shore. Canyrs, between Muckness and Bay and Bays, and near Merstonick in Angles, *Egypt*. Common in Origny, Mr. Noll. Y.

Two or three feet high, glabrous. Root much creeping. Leaves very long and acuminate. Panicle is a very compact spike, attenuated at each extremity. Cal. rough at the base, valvate-membranous. Cor. far more rigid, scarious, veined. Awns large, purple. Called Maron in Gaelic (*Egypt*), in Scotch Maroon. Very remarkable in landing the lower sands by the sea-shore.

** *Calypso* many-flowered (*Arundo* of authors).

4. *A. Phragmites* (common Reed), red, about 5-flowered, flowers longer than the cal. *Egypt*, p. 106. *E. B.* t. 101.

Hab. Abundant in ditches, margins of lakes, rivers, &c. Fl. July. Y.
Six feet or more high. Leaves broad, lanceolate, much attenuated. Panicle large, purple-brown, at length drooping, very lax. Valves of the cal. very unequal, red ovate-lanceolate, not twice its length, thin, membranous. At the base of each flower is a very

creeping stolon. *Agrostis stipularis* of most English authors, I have no doubt, is only a var. (if so much) of it also. Dr. Richardson's leaves *Phragmites* is certainly so, but whether such a plant exists in England as *A. stipularis* I know, with the red and panicle still more lax and than also, I cannot determine. I am inclined to think, that our *A. stipularis* is only the extreme of also in harshness, and consequently laxity, arising from the richness of the soil."

large sets of white silky hairs. Plant much used for thatching, for fences and various economical purposes.

15. HOLCUS.

1. *H. serratus* (Oat-like Soft-grass), perfect flower superior scarcely awed, imperfect one antheriferous with a very long jointed awn, root knotted. *Lichtf.* p. 105 (*Avena elatior*). *E. B. t.* 1813.

Hab. Hedges and pastures, frequent. *Fl* July. *Y.*

Two to three feet high. Leaves linear-acuminate. Panicle long, loose. Spikelets greenish brown. Cal glumes unequal, shorter than the lemma, lanceolate, keel pubescent, nerves of the ear bifid at the extremity, outer ones hairy, much awed. Habit of an *Avena*, but flowers polygamous. *Aridanthorum* Brönck. The Malva authors of *Schraden* seem to be scarcely different from it.

2. *H. mollis* (creeping Soft-grass), perfect flower inferior and awless, imperfect one antheriferous with a bent awn reaching beyond the cal., root creeping. *Lichtf.* p. 631. *E. B. t.* 1170.

Hab. Among corn, but not frequent. *Lichtf.* Hedges and shady places, occasionally about Glasgow. *Abst.* *Fl* July. *Y.*

Two feet high, hairy. Leaves linear-lanceolate, acute. Spikelets awate, with a protruded awn. Cal glumes equal in length, ovate-lanceolate, much compressed, larger than the lemma, having short hairs. Pubescence of the ear, awate, widely equal. Both flowers often destitute of stam.

3. *H. lanatus* (Meadow Soft-grass), perfect flower inferior and awless, imperfect one antheriferous with a curved awn included in the cal., root fibrous. *Lichtf.* p. 631. *E. B. t.* 1163.

Hab. Meadows, pastures, and woods, common. *Fl* June, July. *Y.* Much resembling the last, but its every part covered with a large and softer pubescence. Panicle generally larger, spikelets rather smaller, but the great difference between the two is in the protruded or included awn.

16. HIEROCHLOE.

1. *H. serrata* (northern Hierochloa), panicle subterminal, perianths glabrous, lemma awless, outer valves of the cor. inflexed at the margin. *Roem. et Schrad. Syst. Fig. v. 3. p. 512.* *Holcus odoratus*, *Lin. Sæm. n. 918.* *G. Don. MSS. ined.*

Hab. In a narrow mountain valley called Killa, Angus, *G. Don.* *Fl* July. *Y.*

A valuable discovery of the late acute Mr. G. Don, — called *Marrubium* by Gmelin, because in some parts of the *Fraxinea dumetosa* it is dedicated to the Virgin Mary, and strewn before the doors of the churches on festival days. It has, like others of the genus, an agreeable scent, resembling that of *Ardanthorum odoratum*. Linnaeus tells us it is a soporific, and sold in the towns in Sweden to be suspended over the beds, and induce sleep. About one foot high,

* From *Spæ.* awed, and *glum.* or *glum.* a Grain.

glaucous. *Leaves* linear-acuminate. *Panicle* brownish, shining. *Spikelets* broadly ovate. *Cal* valves ovate, acute, rather unequal, sometimes a little serrated at the point. *Flower* rather longer than the cal, and the outer valves of a lower verture, sometimes when highly imbr., distinctly imbr. at the margin, the point sharp but not recurved. *Central* does not ascend.

17. AIRA.

* *Corolla arvensis*.

1. *A. cristata* (crested Hair-grass), panicle spread, flower longer than the cal., glaucous acuminate, leaves hairy. *Egghf.* p. 20 (*Poa cristata*). *E. B.* t. 648 (*Koeleria Pers.*).

Hab. Dry and mountainous pastures, frequent. *Egghf.* About Fort Patrick, abundant. *Fl.* June, July. *W.*

Six to eight inches high. *Leaves* linear, short, glaucous. *Spikelets* ring, ovate-lanceolate. *Spikelets* ovate-lanceolate. *Glumes* all acute or slightly acuminate, lanceolate, compressed, glaucous, or a little rough at the base, inner valves of the cor. white, membranous.

2. *A. squarrosa* (Water Hair-grass), panicle spreading, glaucous obtuse, flower longer than the cal. *Egghf.* p. 54. *E. B.* t. 1557.

Hab. Banks of rivulets and ponds, but not common. *Egghf.* Near Dunbarton, Dr. Brown. *W.* It holds a title to the E. of Gilbertfield Castle, abundantly. *Fl.* June. *W.*

Calves one or one foot and a half long, ascending. *Leaves* linear-lanceolate, obtuse. *Panicle* erect, branches spreading. *Spikelets* oblong. *Cal* valves very small, unequal, plane, purplish, glaucous, and bluntly toothed at the extremity. *Flower* three the length of the cal. upper ones pedunculated, their valves obscure, brown, with green ribs, dephases at the point.

* *Corolla cuneata*.

3. *A. cuspidata* (sturdy Hair-grass), panicle diffuse, branches suberect, flower villous at the base rather longer than the cal., awns small inserted near the base of and not exceeding the cor., leaves plane. *Egghf.* p. 54. *E. B.* t. 1453.

Hab. Moist and rather shady places, abundant. *Fl.* July, Aug. *W.* Much sown in its growth. *Calves* 2—4 feet high. *Leaves* linear, acuminate, rigid, rough at the margin. *Panicle* large, silvery grey or greenish, much branched. *Spikelets* acute. *Cal* valves unequal, lanceolate, subglabrous, rather acute, erect. *Flower* with a few length hairs at the base, upper ones pedunculated, their valves erect, obtuse, erect. *Mr. D. Don* in his unpublished MSS. enumerates the following varieties of this common grass: *α* var. *viridis*, on the sea-shore; *γ* *glauca*, in the Glens mountains, G. Don. *δ* *prostrata*, slenderer, leaves shorter; *var. ovata* in August, G. Don.

4. *A. alpina* (smooth Hair-grass), panicle suberectate, branches and pedicels perfectly smooth, flower villous at the

base as long as the *cal.*, even inserted above the middle of and scarcely exceeding the *cor.*, leaves linear. *A. alp. Linn. Fide Wahl. Lapp. p. 34. A. navigata, E. B. t. 2162. D. Don. MSS. inedit.*

HAB. Moist rocks on the mountains of Angou-diet, *D. Don. Ben Leonard, D. Don. Ben Arthur and Highland mountains, probably not uncommon. Fl. Jul. 7.*

About 1 foot high, very smooth. Leaves only scabrous to the touch on the upper side, short. Panicle rather small, branches erect, on the lower ones, when virganeous (which they mostly are) patent and even drooping. Spikes or purple brown, not numerous, larger than in *A. vagans* and more resembling, so does the whole plant, *A. flexuos.* Cal. valves equal, quite smooth. Petals with a short tail of hairs at the base; upper one not pedunculated. Petals of the *cor.* lanceolate, acute, entire, not compressed. Wahlberg considers this to be the true Linnean *A. alpina*, of which no specimens however exist in the Linn. Herb. at Marwick. Very nearly allied to it is the *A. streptosperma* of Wahl *Fl. Lapp. Cal. alpina Fl. Don.*, but it differs in the well lower-forward parallel and in the flowers being considerably shorter than the cal.

3. *A. flexuos-a* (weird Hair-grass), panicle divaricate, flowers scarcely villous at the base as long as the *cal.*, even jointed inserted near the base much longer than the *cor.*, leaves setaceous. *Lightf. p. 35. E. B. t. 1512.*

HAB. Heaths and hilly places abundant. *Fl. Jul. 7.*

Habit of the last, but taller. Flowers larger and even protruded considerably beyond the cal. Petals of the *cor.* as in the two last species.

4. *A. corypophylla* (Silver Hair-grass), panicle divaricate, flowers scarcely villous at the base shorter than the *cal.*, even inserted below the middle jointed longer than the *cal.*, leaves setaceous. *Lightf. p. 35. E. B. t. 1512.*

HAB. Gravelly hills and pastures, frequent. *Fl. June, July. 7.*

From 2 to 4—6 inches. Leaves short, few. Panicle trichotomous, flowers silvery grey. Cal. valves nearly equal, lanceolate, the upper joint pedicellated and white. Petals of the *cor.* unknown in the back, unequal, open lobe.

5. *A. pumila* (weird Hair-grass), panicle much less spiked, flowers scarcely villous at the base about as long as the *cal.*, even twisted inserted below the middle longer than the *cal.*, leaves setaceous. *Lightf. p. 35. E. B. t. 1506.*

HAB. Sandy hills and pastures. *Fl. May, June. 7.*

One to three inches high. Panicle or spike few-flowered, pale silvery green. Petals of the *cal.* lanceolate, scabrous when much open, those of the *cor.* narrower, acuminate, entire, the point lobe.

16 MELICA.

1. *M. nutans* (Mountain Melic-grass), panicle nearly simple

moaned around, spikelets drooping over two-flowered. *Lighth.* p. 56 (*M. sativum* var.). *E. B.* i. 1055.

HAB. Lord Breckinridge's woods, Arundel, in Nether-Lore. *Lighth.* On banks in Vigne-shire, *E. Don*. Bessley woods, plentiful, *Mr. Arundel and the Rev. Mr. May*, June 12.

One foot or more high, leafy. Leaves linear-lanceolate. Cat. glumes acute, convex, curved, deep purple brown, margin pale. Jaws of the ear cartilaginous, unequal, convex, wider ear large. Between the two perfect flowers the rudiments of a third, pedunculated, consisting of a 2-lobed or hooded ear without either glume or stamen.

2. *M. anglica* (*Wood Meleagris*), panicle branched slightly drooping, spikelets erect; ovate with only one perfect flower. *Lighth.* p. 56 (*M. sativum*). *E. B.* i. 1055.

HAB. Bessley wood, not uncommon, *Lighth.* Hamilton, Bantyn and Boddrell woods, Glasgow, *High*. Bessley woods, plentiful, *Mr. Arundel*. Arundel and Castle Campbell, *Mr. Arundel*. *Fl.* June, July 12.

Impetuous flower upon rather a long footstalk. Leaves broader than the last, and whole plant rather larger.

3. *M. curvata* (*purple Meleagris*), panicle erect subconcentric, spikelets erect oblong-cylindrical. *Lighth.* p. 56. *E. B.* i. 730.

HAB. Wet heathy places and moors, abundant. *Fl.* Aug. 12.

Habit very different from the last, and has hence been made a genus, *Eriophora* of Guss., and *Stenota* of the Baron de Haenroth. Culm 1—2 feet, or more, high. All the leaves, which are long and linear, apiculate, springing from the base, or from the single joint immediately above it. Panicle from 2—3 inches in length, purple, rusty, and probably only when growing in moist shaded situations, green. Cat. nodes lanceolate, rarely equal. Flowers generally 1—2 perfect and 1 sterile, much exceeding the cat. Others large, purple. When there is but 1 flower in a cat., this is longer than when there are two. Specimens in the vase, with the whole panicle pale green, sheathless, and the leaves scarcely exceeding the panicle in height, yet differing in size the respect, are the *M.* of *D. Don's MS. note*—Specimens are made of their culms in some parts of England. (*MS.*) In *MS.* the differences make excellent types for their sets of this genus. *Lighth.* This circumstance is quoted by Withering as of the *M. curvata*.

18. SIEGLERIA

1. *S. curvata* (*Blue Meleagris*), panicle spiked ovate branched, spikelets 2—3-flowered, cat. valve of the ear serrate and toothed. *Lighth.* p. 100 (*Cynodon* var.). *E. B.* i. 1613.

HAB. Highland mountains, common. Plentiful on Ben Lomond. *Fl.* April—June 12.

Probably the very earliest flowering of the mountain grasses and an exceedingly beautiful one. Much taller, 6—12 inches high. Leaves

linear, obtuse. *Spikes* of a shining bluish grey with large yellow anthers tipped with purple. *Spikes* generally in pairs, oblong-ovate, the lower one with an ovate-oblong and toothed bract at the base. *Calicles* ovate-lanceolate, toothed, middle tooth lengthened into an awl, pubescent at the base and margin. *Pistils* longer than the cal. *Falve* of the cor. oblong-ovate, awl-tipped, pubescent and ciliated with 2 or 3 teeth, the middle tooth lengthened into a short awl and bifid.

29. POWR.

1. *P. equiseti* (Reed Meadow-grass), panicle erect very much branched, spikelets linear of about 8 obtuse florets which have 7 ribs. *Lightf.* p. 1053. *E. B. &* 1313.

Fls. Sides of rivers, ponds and ditches, but not common. *Lightf.* Banks of Liffey river, at Broomington bridge, Slough. About Perth and Forfar, G. Don. Kilmarnock, Fifehire, Mr. Brown. Fl. July, August. ²

Four to six feet high, erect. *Leaves* linear, lanuginous, rough. *Ligula* short, obtuse. *Cor. valves* small, ovate, obtuse, membranous, smoothish. *Ext. valve* of cor. twice as large as the calyx, awl one narrower and bifid at the point.

2. *P. distans* (Roasting Meadow-grass), panicle nearly erect slightly branched, spikelets linear appressed of from 7—11 obtuse florets which have 7 ribs with short intermedian awns at the base, soon emerging. *Lightf.* p. 103 (*Proseris, Rustica*). *E. B. &* 1349.

Fls. Flourished in ditches and stagnant waters. Fl. July, August. ³ *Caules* from 1—3 feet high, thick and succulent. *Leaves* linear-lanceolate, acute. *Ligula* oblong, pointed. *Panicle* suberect, very long, slender. *Cal.* subtransversal, small, ovate, membranous, obtuse. *Cor. valves* ovate-oblong, thrice as long as the cal., outer ones subovate. The little scale (Nativity L.), at the base of the germens is of 2 fleshy glumes, and the glumes are much divided, on which account Mr. Brown makes of it a new Genus *Glyceria*. It is found in New Holland. The seeds, under the name of *Manna seeds*, are sold in Hol-

² The different species of *Poa* border so closely the one upon the other that it is hardly possible to subdivide the Genus by means of well defined characters. The following may serve to aid the student in his investigations.

³ *Cal.* as long as the *flavels*, *ext. valve* of the cor. *tridentate*, (*Tridentis* Lk.) *P. decumbens*, 12.

⁴ *Cal.* shorter than the *flavels*, *ext. valve* entire.

+ *Spikelets* open or lax lower.

P. equiseti, 1. *distans*, 2. *maritima*, 3. *distans*, 4. *peruviana*, 5. *rigida*, 6.

++ *Spikelets* more or less close.

P. compressa, 7. *alpestris*, 8. *hirs.*, 9. *cutis*, 10. *viridula*, 11. *patens*, 12. *erecta*, 13. *serotina*, 14.

⁵ When the *flavels* are sessile, and the ribs or nerves of the *flavels* are equidistant, the outer valve of the cor. above is divided to

land as food, and according to Lightfoot in Poland and Germany Soldatins in our shops and employed occasionally as a scrubbing and mild diet.

3. *P. maritima* (creeping Sea Meadow-grass), panicle erect sub-concitate (right), spikelets linear of about 5 obscure flowers which are absolutely 3-nerved, leaves convolute, root creeping. *Lightf.* p. 98. *E. B.* t. 1148.

HAB. Sea-coast in many places. Isles of Orkney and Skye and at Loch Broom, Ross-shire, *Lightf.* *E.* July 7.

Eight to twelve inches high, rigid, glaucous. Leaves involute, somewhat pungent. Ligule ovate, bluntish. Glumes all firm, cartilaginous. Cal. valves nearly as large as the cor., with nearly 3 ribs. Flaws hairy at the base, sometimes purplish.—Lightfoot was quite mistaken in supposing it might be a root of *P. filiformis*.

4. *P. distans* (upland Meadow-grass), panicle divaricate, branches at length deflexed, spikelets linear of about 5 obscure flowers which are absolutely 3-nerved, leaves plane, root fibrous. *E. B.* t. 985.

HAB. Coast of Angus-shire and other parts of Scotland, *G. Don* *E.* July, Aug. 7.

One foot high. Leaves linear, plane, not pungent. Ligule short, obtuse. Branches of the panicle regularly deflexed, denser. Spikelets much smaller than in the last species. Glumes membranous, softer. Cal. valves much smaller than the cor., unequal, larger one obviously 3-nerved.—Alfred to the last, but very distinct.

5. *P. procumbens* (prostrate Sea Meadow-grass), panicle compact ovate-lanceolate disticho-sected (right), spikelets linear-lanceolate of about 4 flowers which are 3-ribbed. *E. B.* t. 122.

HAB. Salt marshes, not uncommon, *D. Don* *E.* June, July 7.

Stems procumbent, 5—8 inches long, glaucous. Leaves linear. Ligule short, very blunt. Panicle about 2 inches long, branches patent distichous, their spikelets axillal. Cal. valves smaller than the fls., obtuse, strongly ribbed. Flaws elong. distant upon the valves. Inner cor. valve membranous, fold at the point.

6. *P. rigida* (hard Meadow-grass), panicle lanceolate disticho-sected (right), spikelets linear sessile of about 3 flowers which are almost ridged, root fibrous. *Lightf.* p. 1064. *E. B.* t. 1371.

HAB. On walls, rocks, and dry barren soils. On Salisbury Crags and all the rocks in the King's Park, Edinburgh, *Lightf.* Road-side from Edinb. to Haddington, near Drummore, and on walls Burnside, plentiful. Rough. About Edinb. and coast of Fife, common, *Mr. Arnott* *E.* June 7.

Whole plant very rigid and dry, 3—5 inches long, ascending or erect. Leaves rigid, linear, unnotched. Ligule oblong, jagged. Rachis angled, scabrous at once bearing the spikelets (very in looks very like *Trisetum holcaceum*), but more usually showing out branches. Cal. valves nearly as long as the cor., ribbed. Flaws

almost entirely sterile, lance-oblong, rather distant, smooth, bluish.

7. *P. compressa* (creeping Meadow-grass), panicle suberect spreading (afterwards subscarious), spikelets oblong-ovate of from 3—7 distant flowers connected by a web, culm compressed, root creeping.

Hab. Walls, Melrose Abbey, *Lepidif.* Walls about the King's Park, Edinb., *Morph.* Walls and in the pastures about Glasgow, very rare. *Morph.* Common about Edinb., *Mr. Brown.* Fl. July, Aug. X.

One foot or more high, subglabrous. Culm compressed, at the base proscarious. Leaves short, linear, acute. Ligule very short, blunt. Panicle not much branched. Cal. valves ribbed, acute. Paleae of ear. distant, outer one very slenderly ribbed, the lower furrow webbed at the base.

8. *P. alpina* (alpine Meadow-grass), panicle diffuse, spikelets ovate of 4—5 acute flowers hairy below (but not webbed), leaves broadly linear obtuse, ligule of the upper leaves oblong acute of the lower ones short obtuse. *Lepidif.* p. 36. *E. B.* t. 1931.

P. glomerata, spikelets crowded. *D. Don's MSS.* ined.

Hab. Common upon elevated mountains in the Highlands. *P.* Banks of the Esh, G. Don. Fl. July, Aug. X.

Stem to twelve inches high, noddy erect. Leaves short, linear, obtuse with a very small mucro. Spikelets rather large, close. Cal. valves ovate-lanceolate, much compressed; dorsal rib scabrous, terminating in a very sharp point or short awn, with a short lateral rib or nerve at the base. First valve of ear ovate-lanceolate, acute; dorsal rib scabrous, no lateral ones, lower part ribbed; upper part glabrous, purple; margin diaphanous; cal. valve patchy or bald at the extremity.—This grass is very frequently variegated.

9. *P. lina* (slender Meadow-grass), panicle uncontracted lax slightly drooping, spikelets ovate of about 3 flowers which are acute connected by a web, leaves narrow linear-acute, ligules all lanceolate. *Willd. Sp. Pl.* p. 268. *E. B.* t. 1133 (*P. flexuosa*).

Hab. Ben Nevis, *Mr. J. T. Macleay.* Fl. July X.

A very slender subglabrous grass, scarcely able to support the weight of its panicle, which consequently droops slightly. Leaves more numerous than in *P. alpina*, and much narrower. Panicle very slenderly ribbed, all very acute, green and purple, with diaphanous margins. Cal. valves nearly equal, pubescent on the back, as is the ear, which is also webbed.

10. *P. arida* (poor-green Meadow-grass), "panicle spreading, spikelets ovate 5-flowered, glumes lanceolate silky-edged unconnected by any web, stipule (ligule) very short and blunt." Sm. in *E. B.* t. 1719.

Hab. Scotland, *Mr. Forster.* Ben Lomond and other Highland mountains, *Mr. J. T. Macleay.* Banks of Ben Lomond and Clava, mountains of Aberdeenshire, not rare, G. Don. Fl. June, July X.

I know this plant only from the figure (taken from a cultivated specimen) and description in *F. Det.* To judge from them, I must confess, it seems to have few characters to recommend it as a species, though I am not prepared to say to what individual it may belong, probably to *P. glauca* of the same work, of which *W. Alcock* makes it the var. *β. anglica*, *pericarpia major diffusa*. But these very characters may be the effect of cultivation.—See *P. nemoralis*, var. *glauca*, of this work.

11. *P. aristata* (roughish Meadow-grass), panicle diffuse, spikelets oblongo-ovate of about 3 flowers which are acute 5-nerved connected with a web, culm and sheath roughish, ligule oblong, root fibrous. *Lightf.* p. 97 (*P. truncata* and *P. angustifolia* *P.*). *E. B. t.* 1072.

Hab. Meadows and pastures, common. *Fl. June, July, &c.*

One last to 2 feet high. *Lower leaves*, acute. *Panicle* much branched.

12. *P. pratensis* (smooth-stalked Meadow-grass), panicle diffuse, spikelets oblongo-ovate of about 4 flowers which are acute 5-nerved webbed, culm and sheath smooth, ligule short, root creeping. *Lightf.* p. 97. *E. B. t.* 1073.

β. minor, much smaller, subglabrous, panicle fewer-flowered. *P. humilis*, *Edik. Grass.* p. 113 (*side Sm.*). *E. B. t.* 1004 (*P. subcoriata*).

Hab. Meadows and pastures, common.—*β. Wall-ops* and dry sandy places, not uncommon. *Mr. Sweet*. Upland pastures, common. *G. Don*. Sandy heath *Edik.*, and sea-shore *Kirkcaldy, Mr. Grenville*. Dune-hay-land, *Calliscom.* *Fl. June, July, &c.*

Much as this species is allied to the last, the difference in the above characters prove the two to be absolutely distinct. Var. *β.* seems but a stunted state of it.

3. *P. cunea* (annual Meadow-grass), panicle subterminal divaricated, spikelets oblongo-ovate of about 5 flowers which are a little remote 5-ribbed destitute of web, culm ascending compressed, root fibrous. *Lightf.* p. 97.

Hab. Meadows and pastures and by road-sides, every where. *Fl. spring and summer.* *G.*

Calyx 6—10 inches long, below prostrate and throwing out roots. *Lower divisions*, linear, rather blunt, bearded, often veined, bright green. *Ligule* oblong, acute. *Panicle* pale green, the branches all length much divaricated. *Cal. lobes* very unequal, ovate-lanceolate, rough on the back, serred. *Ext. valve* of ear ovate-lanceolate, acute, white and glaucous at the margin, keel and base hairy.

14. *P. nemoralis* (acid Meadow-grass), panicle slender slightly leaning one way less attenuate, spikelets lanceolate of about 3 rather distant slightly webbed flowers, ligule short truncate, culm subcompressed and sheath glaucous, root suberectant. *Lightf.* p. 98. *E. B. t.* 1203.

β. glauca, slenderer glaucous, panicle more contracted. *P. glauca*, *E. B. t.* 1720; and *P. cunea* *E. B. t.* 1718. *P. pubellula*, *G. Don, MSS. ined.*

HAB. Common in woods and thickets.—*B. Scotch Alps, plentiful. Fl. June, July. ♀.*

One to three feet high, slender and delicate in all its parts. *Leaves* narrow, linear, acute. *Petioles* with the laminae at most cruci-
patent. Spikes not rounded. Cal. valves unequal, ovate-lance-
olate, acute, rather obscurely ribbed. Dist. valve of cor. lanceolate,
very obscurely ribbed, pubescent on the back and hairy at the base,
but very slightly webbed. Inner valves, as, I believe, in all the ge-
nus, held at the point.—There can, I think, be little doubt of the
P. glauca being merely an alpine var. of this;—glaucous, smaller,
 with the spikes rather larger in proportion. Such seems to be
 the opinion of Ledebur, and Wahlenberg and Gussone have noted
 the *P. rosea* of *L. B.* with the *P. glauca*; the latter considering both
 as varieties of *P. nemoralis*.¹ Wahlenberg, indeed, though he makes
 a species of *P. glauca*, says that it is as it were intermediate be-
 tween *P. teretica* and *nemoralis*; "and colors glauca etiam ab
 utroque differt." The *P. pubesula* of *D. Don's* *Math.* I am sorry I
 cannot distinguish from the glaucous var. here noticed, except that
 it is somewhat less glaucous, as, as Mr. Don expresses it, "*glauco-
 nemoralis*,"—is all I find at the base of the forest a more or less
 apparent glaucous webbed substance.

11. *P. decumbens* (*decumbens Mendougenensis*), perianth nearly
 single contracted few-flowered, calyx as long as the 4-flowered
 apophysis, ligule a tuft of hairs. *Engelm.* p. 102 (*Peckia dec.*),
R. B. t. 732.

HAB. Dry mountain pastures Abundant in the hills of Canada, *Engelm.*
Mont. beyond Fort, Gilead, Neph.—*Colo. hills; Newburgh and*
Cathlamet hills, Gilead, D. Don.—*Arthur's Seat, coast of Fife, (in*
Forster- and Miramichie, Brunswick, Mr. Asch.—*Portland*
hills, Mr. Gosselin. Fl. July. ♀.

One foot long, procumbent, flowering culm only erect. *Leaves* linear,
 rigid, acuminate, hairy as well as the sheaths. Cal. valves nearly
 equal, lanceolate, acute, serrated, with broad thin margins, pubescent
 on the back. *Ext. valve* of the cor. acute, serrated or ribbed, having
 a small tuft of hairs on each side the base; apex with three teeth:
ext. valve obtuse, entire at the point, ciliated at the angles of the
 lobes.—*Stam.* very different from *Poa*, and Mr. Brown suggests that
 it may belong to his genus *Trachia*. It is *Dendroica* of *Decandolle*.*

* Besides the foregoing species of *Poa*, the two following are to be added
 as natives of Scotland: but as I have never seen specimens, so as to be able
 to verify them, or to put them in their proper place in the genus, I think it
 better to give them in a note.

1. *P. stricta*, panicle branched, spikes of 3 flowers erect, red glaucous
 lanceolate 4-flowered nearly equal uncontracted keeled, bases 4-flowered
 truncated at the apex villous at the base. *D. Don, Dict. of New or Rare*
Plants of Scotl. p. 4.

2. *P. Festuca* in *Angus-shire, G. Don*—Said to be very near *P. pro-*
cynea.

3. *P. leptostachya*, panicle contracted somewhat racemed, panicle very short
 glaucous, spikes 4-flowered, red glaucous lanceolate minutely equal

21. *SHLEA*.

1. *D. media* (common *Quaking-grass*), spikelets broadly ovate of about 7 flowers, cal. shorter than the corolla. *Lepidif.* p. 93. *E. B. & L.* 349.

Hab. Meadows and pastures, but rare in the Highlands. *Lepidif.* About the ponds at Douglas. At the entrance to the falls of the Chale, and about Ardara. *Hab.* 21 July. 2.

Whole plant very elegant. Culm slender, 1 foot or more in length. Leaves short, linear, acuminate. Panicle a good deal branched, branches thread-shaped, divaricating, purple. Spikelets terminal with many bracts, very smooth, shining, purple, more or less green at previous whorls at the edges. Cal. valves very narrow, subcompressed. Ext. valve of cor. much like the cal. but rather smaller, not, one minute, resembling a flat scale, within the largest one.

22. *DACTYLIS*¹.

1. *D. glomerata* (rough *Carl's-foot-grass*), panicle crowded secund, leaves plane. *Lepidif.* p. 93. *E. B. & L.* 335.

Hab. Waysides, meadows and woods, abundant. 21 July. 2.

One to two feet high. Leaves rather broadly linear, acuminate, scabrous. Panicle secund. Spikelets of 3-4 flowers, thickly clustered on the branches, clusters ovate. Valve of the cal. membranous, smaller than the cor., lanceolate, acuminate, unequal, glabrous, apiculate at the back of the valves, which are more or less obliquely bevelled. Ext. valve of cor. subcylindrical, lanceolate, much compressed, subovate, ribbed, ridged at the keel, with a short awn at the point, not fold at the extremity.

23. *CYNOSURUS*.

1. *C. cristatus* (curved *Dog's-tail-grass*), raceme spiked linear, flowers with a very short awn. *Lepidif.* p. 100. *E. B. & L.* 316.

Hab. Dry pastures, frequent. 21 July. 2.

One to one and a half feet high, slender. Leaves narrow, linear, acuminate. Raceme secund. Panicle beautifully pinnated, set at the base of each spikelet, dist. divisions linear, acute, greenish, subglabrous, a little curved, rough. Spikelets 2-3-flowered. Cal. valves lanceolate, nearly equal, membranous, rough at the keel, as long as the flori. Ext. valve of cor. lanceolate, obviously narrowed, green, membranous, especially at the keel, terminating in a short rough awn; int. white, bilobed, pubescent at the angles at the fold.

¹ Inverted inwards at the extremity. Bracts lanceolate rather acute at the point. *D. Des. Race of New or River Plants of Scotland*, p. 6.

Hab. Banks of the Tyrr, west of Dundee, *G. Des.*—This is the totally distinct from any British *Pin*.

² This agrees very imperfectly with the character given of *Dactylis*, especially in what concerns the cal. In reality it agrees with *Festuca*, but the clustered secund panicle indicates a different genus.

24. FESTUCA.

1. *F. ovina* (Sheep's Fescue-grass), panicle subcylindrical subcompressate, spikelets oblong of about 4-5 flowers with short awns, culms sparse (sparsely), leaves immixtus. *Lightf.* p. 101. *E. B. t.* 555, and t. 1317 (*F. cana*).

β. *virgata*, plant taller, leaves capillary. *F. ovina* β., *Lightf.* *F. virgata*, *E. B. t.* 1314.

HAB. Abundant in dry elevated pastures. β. Mountain common, especially the lofty ones, met in the plains. Wall, Helmsburgh, Hopk. *Pt. Jun.* July. N.

Leaves short, often curved, smooth or slightly scabrous, much folded and affording excellent food for sheep. Ligule very short, projecting on each side. Culm 4 to 5 inches high, in the upper part more or less square. Cul culms much shorter than the ear, acute, subglabrous. Cul culms rather more or less glabrous, sometimes pubescent upward, or even hairy*, terminated by an awn, which, though varying in size, at the utmost does not exceed half the length of the culm. Whole plant more or less glabrous, with a purple tint in the spikelets. Is the *F. virgata* of authors, which I cannot otherwise consider than as a var. of *ovina*, the plants are not more compressed than in α, the culms in its pubescence, or a somewhat glabrous, nor are the leaves more smooth than in some specimens of α. In my authentic specimens of *F. ovina* I find no character which it may be distinguished from the true *ovina*, the marks given by its author in *E. B. t.* and *Comp. Fl. Scot.* being equally found in *ovina*. Mr. D. Don, in his MSS. now before me, considers the *F. ovina* of Sm. to be the same as *F. Pharus* of Vell. and Oudol.; but my foreign specimens of that plant from Prof. Hoppe have a very different panicle, and awns as long as the flowers. Very near *F. ovina*, and by many considered a var., is the *F. longifolia* of Schult. and Schrad., far more slender in every part, the leaves much longer. Spikelets smaller, green, glabrous, imbricate, not awned.

2. *F. duriaculis* (Hard Fescue-grass), panicle subcylindrical subcompressate, spikelets oblong of about 5 flowers with short awns, stem leaves nearly plane, red culms immixtus. *Lightf.* p. 101. *E. B. t.* 470. *F. glauca*, G. Don MSS. ined.

β. root creeping. *Lightf.* p. 102, and p. 1055 (*F. glauca*). *E. B. t.* 2055.

HAB. Pastures and waste grounds. β. Rocks in Aisa, abundant. Ardglass in Galway. *Lightf.* Moors and islands of the Firth, glaucous, D. Don. *Pt. Jun.* July. N.

See James Smith partly observes, it is hard to say what is a species in this genus, and to me it appears that authors have raised very slight varieties of *F. ovina* and *duriaculis* into that rank. Even these two species themselves it is difficult to distinguish in words, so closely do their more important characters agree. *F. duriaculis* is generally, however, taller or shorter the size of the former, the

* When hairy, it is the *F. leucostachya*, Guss. *Arct.*

spikelets large, but varying as well as the pedicels in roughness and pubescence, often smooth. The lower flowers are complete, the upper more or less staminate. The colour of the plant is generally glaucous green, the spikelets more or less tinged with red. The *F. glauca* Mr. D. Don's *aspidioides* I think, which he made it to be, that of Lamour and Derivoides, has no character which is not included in my *F. chamaeoides*, nor any mark that appears to me to require particular notice. Host and Schimper and Kaulen have added greatly to the species (if such they can be called) of this tribe, of *Festuca*.

3. *F. brevisides* (Barren *Festuca*-grass), parallel second members, flowers shorter than the first monandrous, culm above leafless. *Egghf.* p. 102. *E. B.* t. 1411.

Hab. Dry pastures, but not common, *Egghf.* Frequent on walls about Kibitz, *Ne. York*. Walls and dry sandy places about Oleng, but rare, *Hopk.* *Fl. June.* ☉. (*f.* Schrad.)

Six to eight inches high. Leaves linear, setaceous, complanate. Cul valves unequal, lanceolate-acuminate, serred, rough at the back, flaves almost set in each spikelet. Ant. valve of ear linear-lanceolate, setaceous, tapering into a straight awn, twice the length of the culm.

4. *F. Myurus* (Walt *Festuca*-grass), parallel second elongate contracted, flowers shorter than the first monandrous, culm leafy in its upper part. *E. B.* t. 1412.

Hab. Walls and barren places, but not common, *Hopk.* *Fl.* of *Fest.*, *Ne. York*. *Fl. June.* ☉.

Much resembling the last, but taller. One foot high. Leaves shorter, then shorter longer and springing even from the upper part of the culm. Panicle often 4—6 inches long. Cul. valves and glumes narrower, rather more setaceous, more longer.

5. *F. gigantea* (Walt *Festuca*-grass), parallel branched drooping towards one side, spikelets lanceolate compressed, flowers shorter than the first, leaves linear-lanceolate, ribbed. *Egghf.* p. 104 (*Brassia* *fig.*). *E. B.* t. 1820.

f. *triflora*, parallel more or less slenderer, with three flowers, less or more, *F. triflora*. *E. B.* t. 1018.

Hab. Shady woods, as *Academy* at *North Lorn*, *Egghf.* Most woods and bridges, frequent about Oleng, *Hopk.* *Fl.* on the banks of the *Edo*, near *Fortin*. *Fl. July, Aug.* ☉.

A tall grass, 3—4 feet high, with broad leaves, having the habit of *Brassia*, but placed by Smith among the *Festuca* on account of the absence of the fringe to the inner valve of the ear. Panicle large. Spikelets from 2—4 linear. Cul. val. or very unequal, longer one with three ribs. Outer valve of ear lanceolate, obscurely ribbed, nearly glaucous, membranous at the edge spread. Awn very long, inserted a little before the third point — (but the *F. triflora* is only a stunted var. of this plant, since I can find no difference but what I have indicated above).

6. *F. culmaria* (Walt *Festuca*-grass), parallel suberect much

branched spreading nearly erect, spikelets oblong sessile 3—5-flowered, leaves linear-lanceolate. *E. B. t.* 1906.

β. minor. F. decidua, E. B. t. 1906.

HAB. Woody valley at the foot of B. Lanna, 1793, Mr. J. T. Mackay. Kinross Park, 4849, Dr. Brown. Dunderdownish, Breckinshaw, and near Fort Augustus, G. Don. I suspect not uncommon in moist alpine woods and on heaths. *β. Perfoliata, G. Don, Fl. July. 2.*

Tree to three feet high, with large and broad leaves. Cal. lobes narrow, linear-lanceolate, very unequal, smallest single-nerved, larger one with three nerves. *Flower* rather distinct upon the stalk. *Ext. valve* of cor. scabrous, lanceolate-acuminate.

7. *F. inflexa* (smaller *Pinus-grass*), raceme spiked distichous elongate, spikelets distinct linear many-flowered, florets cylindrical sessile. *E. B. t.* 1831.

HAB. Moist meadows and pastures occasionally about Clang, Hyph. Angus-shire, east, G. Don. Much at the foot of Salisbury Crags, Dr. Vale. N. bank of Loch Lomond. Mr. Brown. *Fl. June, July. 2.*

Two feet high. Leaves few, short, linear, acute. Raceme 2—3 inches long. *Stalk* branched. Spikelets nearly sessile, 5—6-flowered. Cal. lobes unequal, lanceolate, acute. Outer valve of cor. ovate, lanceolate, curved, diaphanous at the apex, and obtuse (hence hardly agreeing with the *Geo. claus.*), scarcely acuminate, or only on the nerves. Something the habit of *Poa Anthonii*, but more so that of *Lolium perenne* or *Hyssopus*. *Geodia* suggests that it may be a var. of the following.

8. *F. prostrata* (Meadow *Pinus-grass*), panicle patent branched, spikelets linear many-flowered, florets cylindrical sessile, leaves linear, root fibrous. *E. B. t.* 1832.

HAB. Moist meadows and pastures, common, Hyph. *Fl. June, July. 2.* One to two feet high. Distinguished at first sight from the last by its panicle (not spiked raceme), also by the *florals*, which, though much resembling the last, have their outer valve more acute.

9. *F. alba* (red *Pinus-grass*), panicle patent very much branched, spikelets ovate-lanceolate many-flowered, florets cylindrical subsessile, leaves linear-lanceolate, root creeping. *Lighthf. p.* 103. *E. B. t.* 1833.

HAB. Moist meadows and banks of rivers, but not common, Dr. Perrens, Caroline Park, &c., Edinburgh. Mr. Brown. *Fl. June, July. 2.* Habit much like the last, but twice or thrice the size in every part. Outer valve of the cor. always very acute or even acuminate, sessile, or with a short awn inserted just below the point.

15. EROMUS.

* *Awn terminal. Raceme spiked.*

1. *Er. spicata* (slender *Wood Brown-grass*), raceme spiked slightly drooping, spikelets distichous linear most remote, awns straight longer than the florets. *Lighthf. p.* 102 (*Pinus spica*). *E. B. t.* 739.

Hab. Woods and hedger, not uncommon, *Lighth.* Fl. July. **♀**.
Two feet high. Leaves broadly linear-lanceolate, very hairy. Spike
long. Cal. valves unequal, lanceolate-acuminate, much nerved.
Eal. valve of cor. linear-lanceolate, much nerved, webbed, rarely
hairy; inner one truncate, margins ciliated.

****** Also from below the point of the Cor. Panicle branched.

2. *Dr. aculeatus* (smooth *Spy. Brome-grass*), panicle spreading,
peduncles but little branched, spikelets oblongo-ovate (acute,
Sm.) composed of about ten subcylindrical glabrous rather
remote flowers, longer than the awn. *E. B. t.* 1174. (*Not*
Lighth.)

Hab. Coast of Annap. and Friesland, G. Tre. Clark, *Nr. Annot.* Fl.
July, Aug. **♂**.

Two to three feet high. Leaves somewhat hairy. Cal. and cor. valve
of cor. broadly ovate; int. cor. valve bifid at the point, the mar-
gins strongly ciliated. When the seeds open, the upper spikelets
are pendulous, and the lower exhibit more distinctly the distant
mode of insertion.

3. *Dr. vulgatus* (shaggy *Spy. Brome-grass*), panicle spreading,
peduncles but little branched, spikelets oblongo-lanceolate
composed of about 12 cylindrical pubescent subimbricated
flavens, awn longer than the glume (at length patent, *Schrad.*),
Schrad. Fl. Germ. p. 343. *Lighth.* p. 1054 (*Dr. montana*, *Wid.*
Sm.). *E. B. t.* 1184 (*Dr. multiflorus*).

Hab. Corn-fields, but not common. Fields behind the Bot. garden,
Edinb., Mr. Fother in *Lighth.* Between Edinb. and Newhaven,
Smith in *E. B. t.* At June, July. **♂**.

Of this species I confess myself so know little. It is nearly allied to
Dr. arval.; but the awn is longer (at length patent, *Schrad.*), and
the glumes are pubescent, circumstances undoubtedly likely to vary.
The *Dr. multiflorus* of Wiegand, which Sir James Smith supposes to
be this, *Schrad.*, upon the authority of Wiegand's own specimens,
pronounces to be *Dr. arvensis*. So difficult is it to be certain of
mere descriptions of Grasses.

4. *Dr. molle* (soft *Brome-grass*), panicle erect dense compound,
spikelets ovate subcompressed, flowers imbricated depressed
pubescent, awn straight about as long as the glume, leaves very
soft pubescent. *Lighth.* p. 105. *E. B. t.* 1073.

Hab. Meadows, pasture, heath, corn-fields, &c. Fl. June. **♂**.
One to two feet high. Panicle 2—3 inches long. Spikelets standing
nearly erect. Florets 3—10. Ext. valve of cor. narrow, by no
means forming such cylindrical flaves as in the two last species.

5. *Dr. macrurus* (smooth *Brome-grass*), panicle erect, pedun-
cles simple, spikelets ovate subcompressed glabrous, flaves
imbricated depressed, awn straight about as long as the glume,
leaves slightly hairy. *E. B. t.* 1079, and *t.* 930 (*Dr. pro-*
ensis).

Hab. Corner of a grass-field by the road near Balve, Otag., rather

man, *High.* Fields Angusshire, G. Don. Between Glasgow and Falkfield Loch, D. Don, and *High* MSS under the name of *Br. protensis*. Caroline Park, Edinb., Mr. Stewart and Mr. Gordon. Fl. June, July. ♂. (*p.*, Schrad.)

Scarcely different from the preceding but in the glabrous spikelets, and less pubescent leaves. The excellent Schrad. quotes as a synonym to this the *Br. protensis* of Ehrh., and I can see no difference in the *Br. protensis* of Don (*E. B.* t. 520), except that the plant is more pubescent, and the spikelets somewhat narrower.

6. *Br. squarrosa* (Common *Broom-grass*), panicle drooping, peduncles simple, spikelets ovate-lanceolate subcompressd, florets rarely glabrous imbricated depressed, soon diverging, leaves pubescent. *E. B.* t. 1865.

Hab. Various parts of Scotland, G. Don. Fl. June, July. ♂.

A very distinct species, remarkable for its drooping awn, and very small hairy valves of the ear. I think the late Mr. G. Don was too accurate a botanist to confound this with any other *Broom*; but I must observe that upon the continent it is confined to the more southern parts; and Smith doubts it can be a native of England at all.

7. *Br. arvensis* (sprawling Field *Broom-grass*), panicle spreading (at length drooping), peduncles branched, spikelets lanceolate compressed, florets imbricated depressed glabrous about as long as the straight awn, leaves hairy. *Lightf.* p. 164. *E. B.* t. 1884.

Hab. Grass- and corn-fields, not uncommon. Between Dalkeith and Clyde Iron Works, and about Cuthbert, with *Br. media*, *High* MSS. Fl. June, July. ♂.

Two to three feet high. Distinguished by its rather large, but slender, at length drooping panicle, and spikelets which have nearly a purple tinge. Lightfoot speaks of a stunted var. growing upon the sea-shore at Ormsay, with reniform leaves and umbellous flowers, such as is figured in Fl. Don. t. 183.

8. *Br. erecta* (spright *Broom-grass*), panicle erect, spikelets linear-lanceolate compressed, florets subcylindrical ovate glabrous longer than the straight awn, radical leaves very narrow edined. *E. B.* t. 671.

Hab. King's Park, Edinb., Mr. G. Anderson. Fl. July. ♀.

Two to three feet high. This, as well as *Br. spinosus*, (both of which have the habit of *Pectus*;) is truly perennial. The radical leaves are narrow, the spikelets erect.

9. *Br. super* (hairy Wood *Broom-grass*), panicle branched drooping, spikelets linear-lanceolate compressed, florets reniform sub-cylindrical hairy longer than the straight awn, leaves villous the lower ones hairy. *Lightf.* p. 197 (*Br. racemosa*). *E. B.* t. 1172.

Hab. AnchorSmith Linn, N. side of the water of Ea, near the church of Kirkcubright, Dr. Baillie. Moist woods, common, *High* Fl. June, July. ♂ or ♀ (Don) (♀, Schrad.)

Four to six feet high. Leaves broad.

10. *B. sterile* (barren Broom-grass), panicle drooping slightly branched, spikelets linear-lanceolate, flowers remote, subcylindrical scabrous shorter than the straight awn, leaves pubescent. *Lichtf.* p. 104. *E. B.* t. 1030.

Hab. Moist ground, hedger and fields, common. *Fl.* June, July. ☉. Two feet high. Remarkable for its long, narrow, much curved, and drooping spikelets.

11. *B. distans* (upright annual Broom-grass), panicle erect slightly branched, spikelets linear-lanceolate, flowers remote subcylindrical scabrous about as long as the straight awn, stamens 3 (sometimes 2, *Schrad.*), leaves subglabrous. *E. B.* t. 1036.

Hab. About Edinb., but not common. *Mr. Dracut.* *Fl.* June, July. ☉. One foot high. Allied to *B. sterile*, but panicle smaller, erect or erectopendent, often purplish.

20. *AVENA.*

1. *A. fatua* (wild Oat), panicle erect, spikelets drooping of about 3 flowers, flowers smaller than the cal. hairy below, root fibrous (annual). *Lichtf.* p. 105. *E. B.* t. 2221.

Hab. Cuck-birds, *Arnold.* *Fl.* July, Aug. ☉.

Two to three feet high. Leaves linear-lanceolate. Cal. valves large, membranous, ovate-lanceolate beaked, unawned, ribbed. Cor. awns with long fulvous hairs, bald at the point. Awn long, reflexed—An excellent hygrometer.

2. *A. pubescens* (downy Oat-grass), panicle erect nearly simple, spikelets of about 3 flowers which are longer than the cal. their pedicels villous, leaves plane downy, edges smooth. *Lichtf.* p. 105. *E. B.* t. 1549.

Hab. Dry mountain pastures, *Lichtf.* Pastures about Glasgow, but rare; banks of the Carr opposite the Mill, *Steph.* Arthur's seat, Salisbury Crags and shores of the Forth, *Mr. Dracut.* *Fl.* June, July. ☉.

Spikelets half the size of the former, nearly erect. Upper part of the glumes very white, silvery. Cal. valves lanceolate, acute. End. valves of the cor. oblong, jagged at the extremity, not very membranous, point bald. Pedicel or receptacle of the flower with a tuft of long white hairs.

3. *A. plumiculata* (flat-topped Oat-grass), panicle erect slightly branched (subspicuous), spikelets of about 2 flowers which are much longer than the cal., margins of the leaves and sheaths scabrous, culms and sheaths crepuscular. *E. B.* t. 2141.

Hab. Rocks on the summits of the highest mountains in Glen, Anglinshire, *G. Don.* *Fl.* July. ☉.

Two feet high. Leaves all very broad without pubescence. Receptacle of the flowers less hairy than in *A. pubescens*, with which the general appearance of the plant agrees.

4. *A. prostrata* (narrow-leaved Oat-grass), culms erect simple,

spikelets of about 5 flowers which are longer than the cal., leaves glaucous finely serrated, lower ones lanceolate. *Lightf.* p. 103. *E. B.* t. 1264.

Hab. Dry mountain pastures about Blair, Dr. Purser. Fl. July. $\frac{1}{2}$. Remarkable for its short leaves, finely serrated at the margins, the lower ones being complicate and involucrate, and for the reversed spikelets. *Receptacle* of the flowers very slightly hairy.

3. *A. Americanus* (yellow Oat-grass), panicle much branched lax, spikelets of about 3 flowers which are longer than the very unequal valves of the cal., root creeping. *Lightf.* p. 106. *E. B.* t. 163.

Hab. Dry meadows and pastures, Dr. Purser. Common about Edinb., Mr. Arnott. Fl. July. $\frac{1}{2}$.

The smallest of our three, about 1 foot high. *Spikelets* numerous, small, pale yellow green. *Valves* of the cal. unequal, obliq., one almost subulate. *Receptacle* of the flowers hairy. *Osteria* ovate, finely 5-nerved, with five very short, acuminate points, and an awn about twice its length; hence the genus *Triandrus* of Pres.

37. TRITICUM.

* *Spica subulosa.*

1. *Tr. junceum* (Sea barley Wheat-grass), valves of the cal. obtuse much obliq. with 4—5 unequal flowers, leaves involucre pungent, root creeping. *Lightf.* p. 100. *E. B.* t. 814.

Hab. Sea-coast in sandy places, frequent. Blair; west coast of Caithness, Orkney and Iceland. *Lightf.* Fl. July. $\frac{1}{2}$.

Whole plant glaucous, rigid, 1 foot and a half to 3 feet high. *Spikes* long. *Spikelets* oblong, much compressed, dense, sessile. *Cal. valves* oblongo-lanceolate, often tridentate. *Ear* ov. valves slender, with 5 nerves.

2. *Tr. repens* (creeping Wheat-grass, Couch-grass), valves of the cal. much serrated with from 4—8 nerves (rarely unequal) flowers, leaves plane, root creeping. *Lightf.* p. 100. *E. B.* t. 333.

Hab. Fields and waste places every where. *R.* throughout the summer. $\frac{1}{2}$.

Height and general aspect of *Tr. junceum*, but rather more slender, of a glaucous colour only when growing near the sea. *Leaves* plane, or barely so. *Spikelets* smaller, less compressed than in *Tr. jun.* *Cal. all* are, not native 5-nerved, acute or terminated by an awn of greater or less length. *Nerves* on the cal. both of this and the former species vary from 5 to 8—Feet of the same field, and difficult of recognition from its long creeping roots.

3. *Tr. caninum* (bearded Wheat-grass), valves armed (usually 3-) nerved with about 5-nerved flowers, leaves plane, root fibrous. *Lightf.* p. 100 (*Shipwreck can.*), *E. B.* t. 1317.

Hab. Woods and hedges occasionally about Glasgow, Hopk. Coast, not rare; between Carolina Felt and Channah, Edinb., Mr. Grenville. Fl. July. $\frac{1}{2}$.

Except the flower roots and long awns, it is difficult to point out a mark to distinguish this from the foregoing species. In its fructification, and that of *Tr. caninus* and *Tr. procumbens*, the varieties are so numerous that it is scarcely possible to draw the line of determination.

4. *Tr. cristatum* (crusted *Wheat-grass*), valves of the cal. sub-acute beaked awns scarcely curved of about 4 toward flowers, spikelets much crowded. *E. B. t.* 1287.

Hab. Sea-side between Ardenath and Montrose, G. Don. Fl. July. ♀. Culm 1 foot or more high, pubescent upward. Leaves linear, acuminate, hairy on the upper surface. Spike dense, oblong, almost 4-sided. Spikelets very regularly distichous, standing out nearly horizontally, lanceolate. Cal. valves small, subulate, toward outer valve of the ear, lanceolate, longer than its awn, with more Grass, very little known even on the continent.

*** Spike round.

5. *Tr. bulbosum* (spilled Sea *Wheat-grass*), valves of the cal. indistinctly 3-angled obtuse of many awnless flowers, root fibrous annual. *E. B. t.* 291.

Hab. Sea-coast, Angus-shire, G. Don. Shore of the lake of May and Forth, plentiful. G. Don. Walls, Carver's Park, and rocks east of Grimsay, and west pier of Berrisford, Edinb., Mr. Arnot, Pittypore, Fife-shire, abundant, Mr. Greville. Fl. June, July. ☉

Stem usually stiff and wiry, equally smooth. For eight. 2—4 inches high, Leaves linear, rigid, plane. Spikelets more or less distant, several, on very stout pedicels, lower ones sometimes 2—3 together. Ear valves of the ear, broadly ovate, concave.

§§. LOLIUM.

1. *L. perenne* (perennial *Darnel* or *Eye-grass*), spikelets much longer than the cal., flowers awnless linear-oblong compressed, root perennial. *Lightf.* p. 103. *E. B. t.* 315.

Hab. Way-sides, pastures and waste places, abundant. Fl. June, July. ☉

One to one foot and a half high. Spike with the habit of *Trifolium rep.*, sometimes from luxuriance compound. Flowers linear-oblong, several.

2. *L. arvense* (annual *Darnel*), spikelets about as long as the calyx, flowers elliptical with very short awn awns, root annual. *E. B. t.* 1125.

Hab. Forth, and fields Angus-shire, G. Don. Fl. July. ☉.

Very nearly allied to the following species.

3. *L. temulentum* (drunken *Darnel*), spikelets shorter than the cal., flowers disposed about as long as the rigid awn, root annual. *Lightf.* p. 103. *E. B. t.* 1121.

Hab. Corn-fields, but not common, Dr. Ferrius. Corn-fields occasionally about Glasgow, Bpsh. Fl. Aug. ☉.

culms 2 feet high, often rough above. Leaves linear-lanceolate, acuminate. Spike long. Cal., as in the last species, very large. Spikelets distant. Florets about 6, elliptical, rather obscurely ribbed—Said to have the power of luxuriating, if the seeds are eaten, and even of constituting clump.

29. ELYMUS

1. *E. acuminatus* (upright Sea Elym-grass), spike upright dense, spikelets pubescent, flowers sessile as long as the calyx, leaves bristly rigid. *E. B. i.* 1472.

HAB. Common on the east and north coast of Sutherland, and shores of Caithness, Shetland and Fife. Height of St. Cyrus near Montrose, and sea-coast near Aber, Moray. Fl. (rarely) July. 2.

Root much creeping, and hence, in the *Archieve* accounts, of great value in binding loose blowing sands. Culms 2—4 feet high, glaucous. Leaves glaucous, pungent. Ligule short. Spike 4—6 inches long. Spikelets geminate, of about 3 flowers, distant on the rachis. Cal. valves 8, lanceolate, acuminate. Florets of cor. exceeding them, but are one broader; cal. bifid at the point, angles of the bifid obtuse. Seeds made into bread is looked

30. HORDEUM

1. *H. maritimum* (Wald Barley), cal. valves of the intermediate lower linear-lanceolate obtuse, those of the lateral floras setaceous scabrous. *Lichtf. p.* 108. *E. B. i.* 1271.

HAB. Walls and by-way-sides, *Lichtf.* Mr. Arnott thinks it is not found to the north of the Firth of Forth. Fl. June, July, &c. One foot high.

2. *H. pratense* (Moorland Barley), cal. valves all setaceous scabrous. *E. B. i.* 419.

HAB. East point of Salisbury Crag, Mr. J. Neil. Fl. summer months. 3.

One foot and a half to two feet high, usually erect.

3. *H. marinum* (Sea-side Barley), cal. valves smoothish, the int. one of the lateral floras semi-lanceolate, the rest setaceous. *E. B. i.* 1203.

HAB. Sea-coast, Angus-shire. G. Don. Fl. July. 4.

Similar as these 3 species of *Hordeum* may appear to a casual observer, they are truly distinct, and admirably characterized by the form, &c. of the cal. valves—This is the smallest species, seldom exceeding 6 or 10 inches, glaucous and procerous at the base.

31. ROTHOLLIA

1. *R. incurva* (Sea Hard-grass), spike filiform or awl-shaped, cal. 2-valved.

2. spike subulate, curved. *Agilops incurva*, *Lichtf. p.* 632. *Rotholia incurva*, *E. B. i.* 760.

β. slendera, spike filiform, nearly erect. *R. affinis*, Roth.
—*G. Don*, Herb. Brit. n. 178. *D. Don*, M^{ss}. ined.

Fls. Sea-shore, but not common. Arbigland in Galloway, *Lepid.*
Various parts of the Scottish coast, *G. Don*.—*β*. Soil marshes,
near Aberdeen, *G. Don*. *Fl* July, Aug. *Fr*.

Plant from 2 to 5 or 7 inches long, in *α* more or less curved
(including the spike) and stout. In *β*, stems upright, longer and
more slender. *Leaves* linear-arcuate, 5-6½ long. *Fls.* in
dense, solitary, alternate, imbricated in a helix at the rachis.
Cal. valves 2, connate, acute, or slightly acuminate. Cor. of 2
lobes, rather unequal, white, membranous valves.—After a
most careful examination of Mr. Don's specimens of *R. affinis*,
I can find no difference but what I have above noted. Smith
takes up the species in *Rov.* *Cyrtogonon*, but without indicating
that it is of British origin. *Fls.* of *R. panicula* seems to be not
different from this *α. β.* in any thing but in its having two-flowered
cymes.

3. TRIGYNIA.

28. MONTIA.

1. *M. fontana*. *Licht.* p. 110. *B. B.* t. 1386.

Fls. In dale, springs, and wet places, frequent. *Fl* June, July, *Fr*.

Whole plant succulent. *Stem* prostrate and rooting, 3-4 inches long.
Leaves small, opposite, spatulate. *Petioles* nearly terminal,
often forked. *Flowers* white, at first drooping. *Stem* covered up
the cor., short. *Germens* and caps. reniform. *Seeds* 3, subreniform,
dotted.

IV. TETRANDRIA.

1. MONOGYNIA.

* *Petaloch double* (Cal. and Cor.).

† *Flowers of 1 petal, 1-seeded, superior.*

1. *DIMORPH.* *Rachides* many-leaved. Cal. double, ext. very
minute; int. cup-shaped, valvate. *Receptacle* chaffy, squamose.
Fruit angular, crowned with the double cal. (*Flowers* capitate.)

2. *SCAMON.* *Rachides* many-leaved. Cal. double, valvately
cut. *Receptacle* chaffy or naked. *Fruit* crowned with the
enlarged double cal. of which the ext. is mostly membranous,
not fleshy, or leathery. (*Flowers* capitate.)

†† *Flowers of 1 petal, 2-seeded, superior.*

3. *GASTRUM.* Cor. rotate, 4-lobed. *Fruit* a dry nut, crowned
with the cal.

4. *Aspidella*. Cor. funnel-shaped. Fruit not crowned with the cal.
5. *Smargadina*. Cor. funnel-shaped. Fruit crowned with the cal.
 ††† Flowers of 1 petal, 2- or many-seeded, inferior.
6. *Plantago*. Cor. 4-lobed, the segments reflexed. Stem, very long. Caps. of 2 cells, 2- or many-seeded, bursting all round transversely.
7. *Carrhotocoma*. Cor. tubular, 4-lobed. Stem, short. Caps. of 1 cell, many-seeded, bursting all round transversely.
 ††† Flowers of 4 petals.
8. *Erometrum*. Cal. of 4 leaves, caducous. Pet. inferior, with an inflated nectary on the upper side. Pod of 1 cell, 2 valves, many seeds.
10. *Comata*. Cal. of 4 teeth. Petals without a nectary, superior. Nut of the drupe with 2 cells and 2 seeds.
 ** Foremost angle.
11. *Parietaria*. Perianth 4-lobed, inferior. Filaments at first imbricated, then expanding with an elastic force. Fruit 1-seeded, included in the enlarged perianth. (One or more of the central flowers destitute of stamens.)
12. *Alchemilla*. Perianth inferior, 8-lobed, 4 alternate and outer segments the smallest. Fruit 1-seeded, surrounded by the perianth.
8. *Schortocoma*. Perianth 4-lobed, superior, coloured, at the base having 4 scales or bractlets. Fruit 1-2-seeded, surrounded by the persistent base only of the perianth.

2. DIGYNIA.

(Carrata, Petr. Dio.)

3. TETRAGYNIA.

13. *Lili*. Cal. 4-5-toothed. Cor. rotate, 4-5-lobed. Stigmas 4, sessile. Berry spheroidal. Nut 4, 1-seeded. (None flowers destitute of pistil.)
16. *Sagittaria*. Cal. of 4 leaves. Petals 4 (shorter than the cal.). Caps. of 1 cell, 4 valves.
17. *Moracna*. Cal. of 4 leaves. Petals 4 (as long as the cal.). Caps. of 1 cell, opening with several teeth at the extremity.
18. *Ranuncula*. Cal. many-lobed. Petals 4. Caps. superior, 5-valved, 5-lobed. Seed solitary (Sm.).
14. *Poranocoma*. Perianth single, of 4 leaves. Anthers sessile, alternating with the divisions of the perianth. Nut 4, 1-seeded, sessile. (Flowers numerous, on a spadix, and apothecium.)
15. *Burrisia*. Perianth 9, Drupe 4, pedicellate, their axis 1-

seeded. (Flowers 2, on a spike arising from the sheathing bases of the leaves, which performs the office of a spathe.)

(*Ceratium latrandrum*, DECAENIA. PENTAND.)

I. MONOGYNIA.

1. DIPSACUS.

1. *D. Fullenii* (Fuller's Thistle), leaves subconnate, scales of the receptacle hooked at the extremity, involucre spreading (reflexed, Sm.). *Lightf.* p. 113. *E. B. t.* 5669.

Hab. In cultivated places, as at Lord Ely's lime-works, near Dunsfording, &c. *Lightf.* Fields near Colchester and Longside, Gloucester, &c. *Fl Jul. Aug. 2.*

Stem 1—2 feet high, very angular, and prickly. Leaves large, oblong or oblongo-lanceolate, obviously and irregularly serrated, sometimes, especially the upper ones, connate. Involucres spreading, about as long as the head of flowers. Flowers in small heads, pale purple or whitish.—Used as dressing cloth, for which purpose the hooked scales of the receptacle are extremely calculated.

2. *D. sylvaticus* (wild Thistle), leaves opposite rarely connate, scales of the receptacle straight, involucre curved upward. *E. B. t.* 1632.

Hab. Irish Coles, near Edinb. *Moqh. Fl Jul. 3.*

The more slender habit, the leaves not so scarcely ever connate, involucre not spreading, and the scales of the receptacle being straight, are the principal marks which serve to distinguish this from the preceding.

3. *D. pilosus* (small Thistle), leaves petiolate with a small leaflet at the base on each side, involucre short deflexed. *Lightf.* p. 113. *E. B. t.* 577.

Hab. Moist hedges, but not common, *Lightf. Fl Aug. Sept. 3.*

Stem slender, 2—4 feet high, angular, rough with short inflexed prickles, longer, and resembling bristles, on the peduncles. Leaves ovato-acuminate, serrated, veined at the base. Heads of flowers sessile, round, hairy. Scales straight, bluish-white. Anthers white, much protruded.

2. SCABIOSA.

1. *S. maritima* (Daisy-like Scabiosa), corollas 4-lobed their segments equal, calyxes leaves subconnate, heads of flowers nearly globose. *Lightf.* p. 114. *E. B. t.* 578.

Hab. Meadows and pastures, common. *Fl Jul. Aug. 2.*

Root as it were cut off abruptly, at 18 in. (rare prostrata). Stem usually single. Leaves hairy, rather stiff, radical ones ovate, mostly petiolate, those of the stem along. Flowers purple or blue.

2. *S. arvensis* (Field Scabiosa), corollas 4-lobed reflexing, stem hispid branched, stem-leaves pinnatifid (often) cut. *Lightf.* p. 114. *E. B. t.* 659.

Hus. Corn-fields, frequent, *Lightf.* Rare in meadows and pastures about Glasgow. Corn-fields near Tullcross, *Highl.* Fl. July. 2.
Stems 2—3 feet high. Radical leaves lanceolate, slightly serrate, hairy. Heads of flowers narrow, purplish, outer flowers large, with their segments unequal, the lower one very large, and forming a sort of ring; inner flowers with equal segments — A white flowered var. is mentioned by M. Nich. as not uncommon in Ockery.

3. *S. columbaria* (small Scotch), corolla 5-toothed radiating, stem hairy, radical leaves oblongo-ovate and serrate or lyrate those of the stem pinnatifid with linear segments. *Lightf.* p. 114. E. B. t. 1311.

Hus. Dry mountain pastures, but rare, *Schubert.* Near Arbroath, Angus-shire, and with white 2, G. Pass. Pinnatifid near Montrose, and at Blackford, *Mr. Thorne.* Fl. July, Aug. 2.

Stems a foot high, hairy. Lower leaves on rather long petioles; neither ever cut into narrow, linear or subcoriaceous pinnæ. Flowers purplish blue. Anthers of stamens longer than the flowers. Invol. cut. with 5 bristles.

3. SHERARDIA.

1. *S. arvensis* (Mar. *Sherardia*), leaves about 8 in a whorl, flowers terminal sessile umbellate. *Lightf.* p. 114. E. B. t. 801.

Hus. Dry corn-fields, not uncommon Near Cambuslang, plentifully; on the bank at the foot of Culteret Castle, and about Dalric, Glasgow, *Highl.* Fl. Summer months. 2.

A small, slender, branched and spreading plant. Leaves oblongo-lanceolate, acute, edges rough, upper ones 3—5, forming an involucre to the small whorl of pale blue flowers. Fruit 2-lobed, 2-seeded, each lobe crowned with a trifid portion of the cal.

4. ASPERULA.

1. *A. odorata* (small *Woodruff*), leaves about 8 in a whorl lanceolate, flowers paniculate on longish stalks. *Lightf.* p. 115. E. B. t. 735.

Hus. Woods and shady places, plentiful. Fl. May, June. 2.

About 8 inches high, erect. Flowers white. Whole plant very sweet-scented, like *Anthriscum*, especially when in the act of drying.

5. GALIUM.

* Fruit glabrous, flowers yellow.

1. *G. verum* (galban *Bed-straw*), leaves about 8 in a whorl linear pointed, flowers in dense panicles. *Lightf.* p. 116. E. B. t. 691.

Hus. Dry banks and rocky no-manes, common, *Lightf.* Fl. July, Aug. 2.

Easily distinguishable by its yellow flowers and linear pointed leaves. Several says that the milk of the best Cheviot cheeses was distinguished with this plant.

* L. p. that tells us that the Highlanders use the seeds of this plant, green.

2. *G. cruciatum* (Crosswort), leaves 4 in a wheel ovate-lance, flowers polygamous situated lateral, peduncles 2-leaved. *Lightf.* p. 533 (*Palustris cruciata*). *E. B. t.* 145.

Has King's Park, Edinburgh, Dr. Purves. Hodges and busby places, very common. *Hepb.* *Fl. May*, June. Y.

"* Fruit globose, flowers white.

3. *G. pedicvtr* (white Water Bed-straw), leaves 4—8 in a wheel oblongo-lanceolate obtuse unequal in size, stem lax spreading branched, branches patent. *Lightf.* p. 115. *E. B. t.* 1857.

Has, Sides of lakes and rivulets. *Fl. July*. Y.

Keel and edges of the leaves a little rough. Fruit smooth.

4. *G. M'clarings* (rough Heath Bed-straw), "leaves about 3 in a wheel reflexed (horizontal in fig. in *E. B.*) lanceolate serrate obtuse, stem nearly erect simple subrosea" (*Sm. Comp.*) *E. B. t.* 5236.

Has, Moist woods near Forfar, G. Don. Ochil hills, above Dunning, Perthshire, D. Don. East end of the lake at Forfar, *Maugh* *Fl. July*. Y.

A very doubtful species, of which I have seen no specimen. Number of leaves as in *G. uliginosum*, but the prickles on the leaves, according to the description in *E. B.*, directed upwards like those of *G. ovatum*. Prickles of the stem pointing downwards according to *E. B.*, upwards according to Withering.

5. *G. uliginosum* (rough Marsh Bed-straw), leaves six in a wheel lanceolate mucronate, the margins rough with reflexed prickles. *Lightf.* p. 115. *E. B. t.* 1872.

Has Meadows and sides of rivers and ditches, common. Found March, N. side of the canal, and marsh W. end of Hoggfield Loch and Freshfield Loch, *Glasg.* *Hepb.* *Fl. Aug.* Y.

Serrate, slender, branched, angular, rough with small prickles, which, as in the leaves, point downwards. Fruit smooth.

6. *G. axonifl.* (smooth Heath Bed-straw), 6 in a wheel obovate mucronate, stem very much branched procumbent glabrous. *E. B. t.* 815. (*G. monitum*, *Huds.* and *Lightf.*, the latter confounding it with *G. uliginosum*.)

Has,illy and heathy places, most abundant. The ground in the Fir Park near the High Church, *Glasg.*, is almost white with it during summer. Y.

Plant small, very glabrous. Leaves of a thickish and rather soft texture. Fruit granulated (*Sm.*). Not so in my specimens, but become diversified in drying.

7. *G. maritum* (upright Bed-straw), leaves about 8 in a wheel lanceolate mucronate their margins rough with prickles point-

edly the back, to give a red colour, boiling them with the pan and adding salt to fix the colour. They also employ it as a remedy to curdle milk, adding the leaves of the stinging Nettle (*Urtica dioica*) and a little salt.

ing forwards, petiole much branched dichotomous, stem glabrous flower. *E. R. t.* 1872.

HAB. Falmouth Quay, near Portofino, Mugh. *Fl.* July 22. Larger than *G. stramonium*, with which it agrees in habit and shape of the leaves. Fruit smooth.

8. *G. diffusum* (spreading smooth-stalked Bed-straw), "leaves about 8 in. a wheel linear aristate glabrous their margins absolutely serrated" (rough with prickles pointing forwards), "petiole corymbose, stems diffuse very much branched." *D. Don. MSS. mss.*

HAB. Near Kew, Argandale, *G. Don. Fl.* — 22.

Stems many, diffuse, very much branched, from a spot to a foot high, angular, glabrous, shining, swelling at the joints. Leaves 8 in. a wheel, linear, plane, glabrous, aristate at the point, with the margins absolutely serrated. Branches and laminae opposite, subdecussate, striated. Flowers corymbose, white. Fruit glabrous. — Very like the *maritimum* of Jacq., but differing in the above character." *Don & Don.*

9. *G. verticillatum* (whorly-fruited Bed-straw), leaves 6 in. a wheel lanceolate their margins rough with prickles pointing forwards, peduncles solitary 3-flowered, fruit warty decussing. *G. Don's Post. 3, 108 (G. Friesen). E. R. t.* 1872. HAB. Corn-hill Close at Gower, and near Fother, *G. Don. Fl.* July 22.

Prickles of the stem deflexed. The two lateral flowers on each peduncle warty, falling away and leaving three pedicels, one on each side the large warty lobe, which together with the marginal prickles of the leaves pointing forwards essentially distinguish this from the English species.

10. *G. spartium* (smooth-fruited Corn Bed-straw), leaves 6—8 in. a wheel their margins as well as the stem rough with reflexed prickles, peduncles solitary many-flowered, fruit smooth spreading. *E. R. t.* 1871.

HAB. Corn-hill near Fother, *var. G. Don. Fl.* July 22.

Habit of the preceding. Leaves longer on the upper surface. Peduncles much longer than the leaves, bearing several flowers. Petioles generally not bent back with the fruit, which is smooth.

11. *G. pumilum* (low Bed-straw), "leaves about 8 in. a wheel linear-lanceolate unaristate entire subglabrous, peduncles dichotomous, fruit very smooth" (*Don*). *E. R. t.* 74.

HAB. Hadden How, in the Portland hills, and lower rocks of Clava, Argandale, *G. Don.* *Scutellaria* hills N. of Glasgow, *D. Don. Fl.* July, Aug. 22.

I confess myself to be but imperfectly acquainted with this species, and have seen no Scotch specimens. Mine under the name, from Ireland, are totally free from pubescence, and have the leaves very closely retuse-mucronate all the way up, in which particular it does not

accord with the E. B. figure. It seems to be the *G. lutea* of Beauvois, who says it is a most variable species.

12. *G. Hedger* (great Hedger Red-stem), leaves about 5 in a whorl elliptical mucronate rough at the margins, flowers pinkish spreading. *Lightf.* p. 116. *E. B.* t. 16-15.

Hab. Hedges and shady rocks by the sides of rivers, but not common. Carlisle rocks, near Larnock, Lightf. Near Dufferin, road-side, at Lamlash hill, between Gortorphen and Rishleton, Rough. Banks of the Clyde at Carryle, *Moq. Fl.* July, Aug. 2.

Stems very long, straggling. Petioles of the margins of the leaves pointing forwards. Segments of the Cor. mucronate.

*** Fruit hooped.

13. *G. boreale* (cross-leaved Red-stem), leaves 4 in a whorl lanceolate 3-nerved glabrous, stems weak, fruit horizontal. *Lightf.* p. 116. *E. B.* t. 168.

Hab. Rocks by the sides of rivers and lakes, not unfrequent, *Lightf.* Bowering bay, Dalriach, Carmichael, *Moq. Fl.* *Moq.* Breckinshaw woods, Mr. Dracott. Banks of the Clyde and in Anna, Mr. Moir rep. *Fl.* July, 2.

Flowers numerous, extended, white. Bracts of the fruit hooked.

14. *G. apurina* (Gorse-grass or Gorsewort), leaves 6—8 in a whorl linear-lanceolate hooped their margins lax and the stem rough with reflexed prickles, stems weak, fruit hooped. *Lightf.* p. 117. *E. B.* t. 80b.

Hab. Hedges, very common. *Fl.* June, July. 3.

Habit of *G. verrucosum* and *apurina*, and, like them, named. Plant straggling. Flowers five, on two or three short simple footstalks, arising from the axils of the leaves. Bracts of the fruit hooked, which by this means catch hold of the coats of animals, and are widely dispersed.

3. PLANTAGO.

* Dissepiment of the Capsule plane, each cell many-seeded.

1. *P. major* (greater Plantain), leaves broadly ovate mostly on longish footstalks, scape rounded, spikes long cylindrical. *Lightf.* p. 117. *E. B.* t. 1558.

Hab. Pastures and road-sides. *Fl.* June, July. 2.

Leaf is all rolled, large, more or less spreading, with 7 nerves, entire or toothed, smooth or pubescent Petioles varying in length, sometimes as long as the leaf, ribbed. Spike dense. At the base of each flower a sessile bract. Cal. of 4 minute lobes. Caps. ovate, 5 or 6 seeds in each cell—This plant varies with the spike leafy, leaves disposed in a rose-like or geminate form. *Moq.*

** Dissepiment of the Capsule plane, each cell 1-seeded.

2. *P. media* (lesser Plantain), leaves ovate mostly with very short footstalks, scape rounded, spike cylindrical. *Lightf.* p. 115. *E. B.* t. 1559.

Hab. Pasture on a generally soft, but not frequent, *Lignif.* Some-
times above Newlands, glaucid, road-side between Riverbank and
Park-head, 3 m. S.E. from Edinburgh, *Moqh.* About Glasgow, but not
common, *Moqh.* Fl. June, July. *W.*

Root large, woody, taproot to Grass-lands. Resembling the last
species, *Leaves* variable in the length of the laminae, but gene-
rally almost sessile, spreading on the ground, with from 7—9
nerves, pubescent or glabrous, the margins mostly entire. *Spikes*
shorter than in *P. major*, but the most important character is that
there is only 1 seed in each cell.

3. *P. lancolata* (*Blissard Plantain*), leaves lancolate, scape
angular, spike ovate, *Lignif.* p. 118. *E. B. t. 175.*

Hab. Meadows and pastures, plentiful. Fl. June, July. *W.*

Spikes having the bractlets sometimes, by laminae, converted into
leaves. *Lignif.* mentions a var. with glabrous heads.

4. *P. maritima* (*Sea-side Plantain*), leaves linear grooved fleshy
woolly at the base, scape rounded, spike cylindrical. *Lignif.*
p. 118. *E. B. t. 175.*

Hab. Sea-coast, as at Helmsburgh, *Moqh.* Road-side near the
avenue to White Moss, Glasgow, *Ore.* Summits of the Highland
mountains.

*** *Dissepiment* with 4 angles (thus forming 4 cells), 1 seed in each
cell.

5. *P. corniculata* (*Black's-horn Plantain*), leaves linear pinnatifid,
scape rounded. *Lignif.* p. 715. *E. B. t. 603.*

Hab. Generally sterile soils, inland and upon the coast. Fl. June,
July. ☉ (Sm.). ☿ (Moqh.).

Leaves mostly spreading, very variable in size and pubescence, pin-
natifid, segments often toothed or again divided. *Scape* hairy.
Spikes mostly cylindrical. In small plants growing at South I have
seen the spike ovate, and composed of not more than 7 or 8
flowers, whilst the leaves and scapes were quite hoap.

2. CENTUNCULUS.

1. *C. minimus* (*Butterfly Plantain*), *Lignif.* p. 119. *E. B. t. 231.*

Hab. Generally places that are a fish market, but not common, *Ore.*
Persea. Marsh near Langside, Do. Brown. and Kilmist bog,
Glasg., *Moqh.* Fl. June, July. ☉.

Plants 1—2 inches high, more or less branched. *Leaves* alternate,
ovate, glabrous. *Flowers* extremely minute, sessile, scillary, sub-
tary. The pale rose-colour, remaining upon the ripe capsule.—Al-
lied to *Lysimachia*.

3. SANGUISORIPA.

1. *S. officinalis* (*great Burnet*), glabrous, spikes ovate, stamens
about as long as the perianth. *Lignif.* p. 119. *E. B. t. 1212.*

Hab. Low moist meadows near Dundee and elsewhere, but not

common. *Light*. Banks of the Nile at Kerkennah, Siemensi of Kerkennah, March. 13 June, July. 2.

One foot to two feet high, branching upward. Leaves opposite with a symmetrical leaflet, the rest of the leaflets opposite, all ovate, sometimes cordate at the base, glabrous, strongly serrated, petiolated, at the base of each pair of petioles are two small toothed appendages in the larger leaves. These are wanting in some specimens. Heads of flowers much crowded, dark purple. Leaf of the perianth in 4 ovate segments, the tube enveloping the germen and having at its base 4 dilated scales or bristles (rad. of anther). Sepal 1, rarely 2.—Affiliated to the plants in the natural class *Fraxinifera*.

§ EPHEDRUM.

1. *E. alpinum* (Barren Plant). *E. fl. i.* 413.

Hab. About the sides of Maphoch cañon, near Glog, abundantly. *High*. Hunter's Tents, near Uluak. *Dr. Hottel*.—A naturalized plant in all probability. *Fl. Mar.*, June. 2.

Stems several from the same root, erect, simple, bearing a compound, internate leaf, base of the petioles swollen, leaflets heart-shaped, externally serrated, dilated at the margin, hairy beneath, cordate, serrated, lateral ones unguiculate. Petiole shorter than the leaf, springing from the swollen base of its petiole. Flowers reddish, mostly white, like an infundibular. Anthers very common, of 2 cells, opening by 2 valves, which spring back upwards, and under the pollen to escape.

10. CORNUS.

1. *C. angustata* (wild Cornus or Dogwood), arborescent, branches straight, leaves opposite ovate green on both sides, apex dorsate of laciniae. *E. fl. i.* 240.

Hab. Quoted doubtfully by Mr. Lindley as growing by the sides of mountains in Scotland. *Strickland*, Mr. *Archer*. Banks near Haddington, March. 13 June, July. 2.

Five to six feet high. Bark in the older branches dark red, as are the leaves before they fall; these are strongly serrated, entire, slightly hairy beneath. Cymes of numerous white flowers at the ends of the branches.

2. *C. macris* (dwarf Cornus), herbaceous, leaves all opposite ovate glabrous, flowers few umbellate surrounded by a 4-leaved involucre and springing from the axil of the forked extremity of the stem. *Light*, p. 119. *E. fl. i.* 346.

Hab. Moist places in the Highland mountains, not unfrequent. In Archa, about Loch Rannach, on Ben More and Chindrich in Breadalban, about Loch Dracen, Ben-shere, *Light*. Fencible hills, Dr. *Miles*. Pencil on the foot of the precipice on the N. side of Ben Nevis, Mr. *Horsup*. About Inverness, Mr. G. *Anderson*. *Fl. July*, Aug. 2.

Root creeping. Stem about 6 inches high. Caulis terminal from the axil of two young branches, which do not cover the general flower-stalk in height till the fruit is ripe. Drupes red, used by the Highlanders to make squabs, and hence called, *Lau-m-chrean*, Plant of glutting. (*Light*.)

11. PARIETARIA

1. *P. officinalis* (*Paritory of the Wall*), leaves ovato-lanceolate, revolute, of many ovate lobes. *Lightf.* p. 624. *E. B.* t. 878.

Hab. Waste places and upon walls, as at Banerholme, near Edinb. *Lightf.* Old walls on the road-side between Northampton and Farnes, Eng. On Hottwell walls, abundantly, *Reph.* Walls at Cannon Mills, Edinb. Mr. Greene. Fl. summer months γ .

Stems often procumbent upon the wall, reddish, pubescent. Leaves alternate. Flowers small, hazy, purple, collected by threes in clusters in the axils of the leaves, and within a small many-lobed involucre. Central of the 3 flowers female. Pistament pointed, in which prominently exists the elastic property for the purpose of discharging the pollen, which is very observable in a hot summer's day. Fruit ovate, black, shining. Pericarp fleshy covering the seed, and concealed by the persistent perianth.

12. ALCHEMILLA

1. *A. vulgaris* (*common Lady's Mantle*), leaves uniform plaind many-lobed serrated.

a. major, leaves almost smooth. *A. vulg.* *Lightf.* p. 120. *E. B.* t. 337.

β . minor, much smaller, leaves very pubescent. *A. hybrida*, Pers. Mac. Dry pastures and sides of mountains, abundantly— β . Hills, as at Cullin, near Glasgow, *Reph.* Fl. June, July. γ .

One foot high, or more. Radical leaves large, as long spatulate, those of the stem with cuneate toothed stipules, upper ones sessile and very small, lobes 5—8. Flowers in many rather lax, corymbose, terminal clusters, yellowish green. Germens 1—2, and rarely 3—4: apiculate. For β is much smaller, very pubescent, and has the clusters of flowers more compact. Foreign authors make this a species, and transplanted roots preserve their character.

2. *A. alpina* (*alpine Lady's Mantle*), leaves digitate serrated at the extremity white and silvery beneath. *Lightf.* p. 120. *E. B.* t. 344.

Hab. Highland mountains, most abundant. Fl. July, Aug. γ .

One of the most elegant of our native vegetables. Tenderness much as in our *A. vulgaris*, but leaves very different, and under-side beautifully silvery.

3. *A. arvensis* (*Field Lady's Mantle or Parsley Plant*), lance-tri-lobed pubescent, lobes deeply cut, flowers small solitary. *Lightf.* p. 121 (*Aphaca arvensis*). *E. B.* t. 1091.

Hab. Fields and gravelly soils, common. *Lightf.* Fl. May, June. γ . Stems branched, leafy, 4—6 inches high. Leaves alternate, with large stipules. Stems, varying in number. Germens 1 or 2.

* *Mantle of our Lady* (the Virgin Mary), therefore not *Lady's Mantle*, as written by most authors.

2. TETRAGYNIA.

13. ILEX.

1. *I. aquifolia* (common Holly), leaves ovate acute spinous.
Ligdy. p. 121. *E. B. t.* 456.

Hab. Woods and hedges. Abundant in woods about Larnach, *Hgh.*
Fl. May, June. *h*

A small evergreen tree with smooth greyish bark. Leaves alternate, deep shining green, very rigid, the lower ones remarkably spinous at the margin, upper ones entire*. Flowers on the axils of the leaves, clustered, Cal. slightly hairy, small. Cor. white, berries bright scarlet. Excellent for hedges, as it bears clipping well. Of the evergreenous bark bay-leaves is made. With the leaves and berries the houses and churches are adorned at Christmas, a relic probably of Druidism, during the prevalence of which, according to Dr. Chandler, "houses were decked with them, that the sylvan spirits might repair to them and remain unmolested by frost and cold winds, until a winter storm had removed the hangings of their darkening abodes."

14. POTAMOGETON.

* Upper leaves floating

1. *P. natans* (Broad-leaved Pond-weed), upper leaves floating coriaceous oblong-ovate petiolate, lower ones membranous imbricate gradually tapering into a footstalk. *Ligdy.* p. 121. *E. B. t.* 1632.

Hab. Lakes and still waters. *Fl.* July. *h*

Varying much in length, when many feet. Upper leaves green, acute, sometimes heart-shaped at the base where the petiole is inserted.

2. *P. heterophyllum* (various-leaved Pond-weed), upper leaves coriaceous elliptical petiolate, lower ones membranous linear-lanceolate sessile (petiole clavate, Sm.). *E. B. t.* 1285.

Hab. In Harlow's Loch, E. side, plentiful, *Hgh.* Lakes of Russia and Belgium; Angou-chere. *G. Tr.*

Smaller than the last, upper leaves succulent.

3. *P. fluitans* (long-leaved floating Pond-weed), upper leaves

* This has not accepted the notice of our poet Southey

"O verdant holt, thou ever stand'st to see

The holly tree!

The eye that contemplates it well perceives in

Its glossy leaves,

Coloured by an intelligence as wise,

As might confound the school's sophistries.

Below, a circling fence, its leaves are seen

Wrinkled and hoar;

No grazing cattle through their prickly round

Can reach to wound;

But, as they gaze where nothing is to fear,

Smooth and unscathed the position leaves appear," &c.

floating subcoriaceous ovate-lanceolate tapering into a rather short petiole, lower ones long lanceolate sessile. *E. B. t.* 1285.

Hab. In the Clyde at Dalforth, Bepk. Ditches and lakes near Forfar, G. Don. *Fl.* Aug. Sept. 2.

Two feet or more long. Upper leaves far less coriaceous and more obtuse than in the two former species. Whole plant obscurely or even reddish, beautifully veined.

** Leaves all submerged.

4. *P. perfoliatum* (perfoliate Pond-weed), leaves cordate embracing the stem. *Lichtf.* p. 121. *E. B. t.* 1286.

Hab. Rivers and lakes, very common. *Fl.* July 2.

Very distinct in the shape and insertion of the leaves. Spike on a rather short peduncle, oblongo-ovoid.

5. *P. densum* (dense-leaved Pond-weed), leaves (all) opposite crowded ovate-serrulate sessile, stem forked, spikes of about 4 flowers. *Lichtf.* p. 122. *E. B. t.* 1287.

Hab. Ditches on the right hand of the walk going down the meadows, near Kilsib, and Camochilne hills, *De. Parvus*. About Glasgow, but not common, in Hardacre Loch, Bepk. *Fl.* June, July. 2.

Plant rather small. Leaves much crowded upward. Spike of fructification very small. Peduncle very short.

6. *P. lacustris* (shining Pond-weed), leaves ovate-lanceolate petiolate. *Lichtf.* p. 122. *E. B. t.* 1288.

Hab. Rivers and lakes, frequent. *Fl.* July 2.

Stems long. Leaves large, very petiolate and beautifully veined. Spike or spikes the longest and most crowded with flowers of any in the genus.

7. *P. crispum* (curled Pond-weed), leaves lanceolate tapering sessile sensibly wavy serrate. *Lichtf.* p. 122. *E. B. t.* 1289.

Hab. Ditches and ponds, frequent. *Fl.* June, July. 2.

Stems long. Flowers rather distant on the spike.

8. *P. lanceolatum* (lanceolate Pond-weed), leaves linear-lanceolate tapering at the base sessile. *E. B. t.* 1290.

Hab. Loch of Lishabreen, Angus shire, G. Don. In a well-head close by the bridge at Derris, *Macdonaldianae*, Mugh.

9. *P. compressum* (flat-stalked Pond-weed), leaves linear very obtuse sessile, stem compressed, spikes about 4-flowered. *Lichtf.* p. 123. *E. B. t.* 1291.

Hab. Ditches and stagnant waters, but not common, *Lichtf.* Freshfield Loch, and loch near New Kirkpatrick, placidally. Bepk. *Fl.* July 2.

Plant small. Leaves the same width throughout. Siliques large, very conspicuous, whitish.

10. *P. gramineum* (grassy Pond-weed), "leaves linear-lanceolate alternate sessile broader than the stipules, stem rounded, subchloretaceous" (Sm.). *Lichtf.* p. 123. *E. B. t.* 1292.

Has. Ditches and ponds, not very common, *Lightf.* In the Upde, Dec. Fl. Aug. 3.

Not being acquainted with this, as really distinct from the preceding, I quote Smith's description. I should doubt its being a good species.

11. *P. pusillum* (small Pond-weed), "leaves linear opposite and alternate distinct spreading from the base, stem cylindrical" (Sm.). *Lightf.* p. 124. *E. B. t.* 215.

Has. Ditches and stagnant waters, *Lightf.* Common, Sept. 27. July 3.

Having no authentic specimens of this species in my possession, I can add nothing from my own observation to the above character from Smith.

12. *P. perfoliatum* (fossil-leaved Pond-weed), leaves dichotomous serratus alternate sheathing, stipules scarcely any, spike of flowers interrupted. *Lightf.* p. 123; and p. 124 [*P. maximum*]. *E. B. t.* 212.

Has. Rivers, lakes and salt-water ditches. Lake of Geneva, near Fath, D. Des. River Tward, near Kelen, *Mongh*.

This species, from the leaves being rather closely set and regularly dichotomous, has, when growing, a remarkably pronounced appearance. Sheath of the leaves long. The spike is interrupted, and as well as the general habit not unlike *Eggon maritima*.

13. RUPIA.

1. *R. maritima* (Sea Ruppia). *Lightf.* p. 124. *E. B. t.* 138.

Has. Stagnant waters by the sea-side, not uncommon, as at Glen-
Eig, Inverness-shire, *Lightf.* Salt-water ponds at Gullion Loch,
Edinb., *Mongh*. Aberlady Bay, Mr. Brown. Fl. July, Aug. 3.
Sorus slender, filiform, sessile, branched, leafy. *Leaves* linear-serratus, sheath as each long, membranaceous, inflated. *Spike* at first very short, included in the sheath, which is pale green; flowers are one above the other, on opposite sides. *Stamens* large, sessile, subquadrate, bending horizontally. *Germens* resembling minute subules in the center between the anthers. After flowering, the spike lengthens remarkably, six or six inches or more, and becomes spicately tenated, so that it may extend or contract itself with the rising or falling of the waters, at the same time the germens swell, and rise upon footstalks (as the fruit ripens) of an inch in length. *Droves* 4, ovate, acuminate. — For a more full account than I am able to insert here of this highly curious plant, and a full analysis of the parts of fructification, I must refer to the New Series of the *Flores Linnæanæ*.

14. SAGINA.

1. *S. procumbens* (procreant Peat-weed), perianth glabrous, stam. procumbent, leaves shortly mucronate, pedic. much shorter than the cal., caps. longer than the cal. *Lightf.* p. 125. *E. B. t.* 258.

Has. Fresh and growthy soils, frequent. Fl. June, July. 3.

Two to four inches long. Leaves linear-subulate, sessile, membranous at the base, convex beneath, plane above, tipped with a short point. Peduncles solitary, from the axils of the leaves and longer than they. Flowers at first drooping.

2. *S. spicata* (common small-flowered Pearl-weed), annual sub-pubescent, stems erect, or prostrudent only at the base, leaves sessile, petals much smaller than the cal., caps. longer than the cal. *E. B. t.* 531. *Don's Flac. T. No.* 154.

Hab. Dry grassy places, not unfrequent, G. Don. *F. Map.* June. ☉.

More slender and of a paler green than the last. Stems and leaves more or less pubescent, with short spreading hairs, point much longer. The leaves are also more narrow.

3. *S. maritima* (common Sea-side Pearl-weed), annual glabrous, stems erect, or prostrudent only at the base, leaves fleshy elliptic, petals none, cal. rather longer than the caps. *Don's Flac. T. No.* 155. *E. B. t.* 2193.

Hab. Sea-coast, not unfrequent, as in Angus-shire, Isle of Skye, Aberdeen, Queensferry and Edinb., G. Don. On Ben Nevis? *Ed.* Isle of Skye, abundant, B. Don.

This very distinct species of *Sagina*, first discovered in Scotland by the writer Mr. G. Don, has been for many years known to a nation of the coast of Ireland, where it was detected by my learned friend B. Brown, Esq. In England, too, it is not unfrequent. It is of a reddish brown colour, perfectly glabrous and essentially distinguished from the two former species by the obtuse leaves, speckled flowers, and lengthened capsule.

17. MENCHIA.

1. *M. glauca* (glaucous Menchia). Pers. *Flac. in Cart. Fl. Lond. ed.* 2. *Sagina arvensis*, *LigMf.* p. 125. *E. B. t.* 609.

Hab. Pasture of a gravelly soil, Dr. Pennant. *F. Map.* ☉.

Stems about 2—4 inches high, erect, or at the base a little reclining, smooth, as well as the leaves, which are opposite, linear-lanceolate, acute, rigid, glaucous. Cal. leaves large, acuminate, white and membranous at the margin. Pet. lanceolate, entire, as long as the cal. Caps. as in *Cerastium*.

18. RADICULA.

1. *R. villegrosa* (*Will-wood*). *LigMf.* p. 174 (*Linum Radicula*). *E. B. t.* 533.

Hab. Moist grassy soils, and where water has stood in the winter. Inokhill, Sir Joseph Banks Langdale, Dr. Brown Hard-side between Dunsbarrow and Helmsburgh, plentiful, *Wagh* Banks of the Spey, between Forchabers and Orton, *Wagh* Kinross-shire, and Angus-shire, Mr. Arnot. Clack, Rev. Mr. M' Ritchie. About Loch Fowen in Angus, and common in the N. counties, Perth, Inverness, &c., Mr. Murray. *F. July, Aug.* ☉.

Very minute plant, 1—2 inches high, repeatedly dichotomous, bushy. Leaves distant, opposite, acute, entire, smooth. Flowers axillary,

solitary, stalked. Cal segments 3-4. Petals white, oblong, dilating much in bud from base, where Dorsal-like rib shows.

V. PENTANDRIA

LITERATURE

¹ *Fluxus macropetalus*, affinis, with 4 (apparently) solid seeds.
Acrostichum aff.

10. *Eumeces*. Cor. irregular, its orifice open and naked. Stygnae separate.
5. *Pseudomantis*. Col. prismatic, 3-delt. Cor. infundibuliform, its orifice naked.
2. *Leptosternum*. Col. 5-partite. Cor. infundibuliform, its orifice naked.
6. *Stenopus*. Col. 5-delt. Cor. ventricose, its orifice closed with convex conchoid scales.
7. *Bomus*. Col. 3-delt. Cor. rotund, having at its orifice 3 obtuse emarginate teeth.
9. *Lycoris*. Col. 5-delt. Cor. infundibuliform, with an incurved tube, its orifice closed with convex conchoid scales.
8. *Arenaria*. Col. 5-delt, unequal, with alternate smaller teeth. Cor. (short) infundibuliform, its orifice closed with convex conchoid scales. Sord. (or Mts) covered with the conchoid and compressed col.
4. *Cyclocnemis*. Col. 3-delt. Cor. (short) infundibuliform, its orifice closed with convex conchoid scales. Sord. (or Mts) depressed, fixed to the style by their inner margin.
3. *Aschisma*. Col. 5-delt, or 5-partite. Cor. infundibuliform, its orifice closed with convex conchoid scales. Sord. (or Mts) hollowed out at the base.
1. *Mysomys*. Col. 3-delt. Cor. hypocaustiform, the segments very obtuse, its orifice closed with short convex scales.

* The following arrangement of the Genera of the British *Aspidiotidae* is after one by Lettenbach in his *Abhandl. Fung. Aspidiot.*—They have all

Page 26 of 26

A. Fisher played in the bottom of the 10th.

1. *Journal of Management Studies*, 1996, 33, 1, 1-14.

† *See* text for details.

[illegible]

1. **Director of the Case, placed with you.**

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

¹⁰⁰ *Ardea herodias* at the lower reaches of the river, closed until another

Anderson, J., Johnson, M., Smith, R.

1. State Area is a subordination (superordinate of the state, superior of the state, above the state).

Aug 2000: 8 Dec 2000: 4

** *Flowers monopetalous, inferior. Seeds covered with a distinct raphe.*

14. *AMARANTH.* Cal. 5-partite. Cor. rotate. Stam. hairy. Caps. bearing all round immixtly.
15. *LYTHRUM.* Cal. 5-partite. Cor. rotate. Caps. of 1 cell, 10-valved.
11. *FRINGEA.* Cal. 5-toothed. Cor. hypocrateriform, tube cylindrical, an anther naked. Stigma glabrous. Caps. 1-celled, opening with 10 teeth.
12. *MELASTOMUM.* Cal. 5-lobed. Cor. hairy. Stigma setate. Caps. 1-celled, 2-valved.
24. *HYOSCYAMUS.* Cal. tubular, 5-lobed. Cor. lobed bell-shaped, irregular, its lobes obtuse. Caps. 2-celled, operculate.
22. *VERBASCUM.* Cal. 5-partite. Cor. rotate, irregular. Stam. declined, often hairy. Caps. 1-celled, 2-valved.
27. *ENTRANCA?* (*Chorula*, Sw.). Cal. 5-lobed. Cor. lobed bell-shaped, its lobes short, mucronate. Anthers, after flowering, spreadly twisted. Style erect. Stigma 2. Caps. 2-celled, 2-valved. Sw.
16. *CONVOLVULUS.* Cal. 5-lobed. Cor. campanulate, pliate. Stigma 2. Caps. 2—2-celled, with as many valves; cells 1—2-seeded.
17. *PLUMBAGINUM.* Cor. rotate, 5-lobed. Stam. inserted upon the 5 teeth or valves which close the orifice of the Cor. Caps. 2-celled, 2-valved.
15. *ASARUM.* Cor. campanulate. Stam. inserted upon the receptacle. Caps. 2-celled, 2-valved.
15. *VINCA.* Cor. hypocrateriform, valvate. Follicles 2, erect. Seeds naked (deciduous of seed-caps).
26. *SCILLIUM.* Cor. rotate. Anthers opening with two pores at the extremity. Berry 2-celled.
25. *ATTARUM.* Cor. campanulate. Stam. distant. Berry 2-celled.

*** *Flowers monopetalous, superior*

23. *SMILAX.* Cor. hypocrateriform, having small scales alternating with its 5 lobes. Caps. half inferior, 1-celled, with 5 short valves.
18. *JUNCUS.* Cor. rotate, 5-lobed. Anthers united at their base. Stigma obtuse. Caps. 2-celled, opening at the top. (Flowers aggregate on a common naked receptacle.)
20. *LOASIA.* Cor. irregular, cleft longitudinally on the upper side. Anthers united into a tube. Caps. 2—3-celled.
18. *CAMPANULA.* Cor. campanulate. Stam. with filaments

* *Glabrous tomentose, calyx 5-part, corolla lobes tubular, superior, style declinate, proterogynous cells mucronate* Sw in *Fruct. Tr. Nov. Juss.*

broader at the base. *Stigma* trilob. Caps. 3—5-celled, opening with lateral pores.

20. *LOMBICHA*. Cor. irregular. Berry 1—3-celled; cells many-seeded.

**** Flowers of 5 (or European and *Blennius* often of 4) petals, inferior.

20. *BUTYRION*. Cal. acetabulate, 4—5-lobed. Berry 2—4-celled, 2—4-seeded.

21. *ECHEMYDIA*. Cal. plane, 4—5-lobed. Caps. with 5 angles, 3-celled, 3-valved. Seeds covered by a coloured arillic.

21. *IMPATIENS*. Cal. of 2 leaves. Cor. irregular, lower petal or nectary saccharous. Anthers sessile. Caps. of 3 elastic valves.

22. *VIOLA*. Cal. 5-lobed, the segments produced at the base. Cor. irregular; upper petal spurred at the base. Anth. sessile. Caps. 1-celled, 3-valved.

***** Flowers of 5 petals, superior.

22. *RHINUS*. Cal. 5-lobed, bearing the Petals and Stam. Style bifid. Berry 1-celled, many-seeded.

23. *HEDERA*. Cal. 5-toothed. Petals broadest at the base. Style simple. Berry 5-seeded, covered by the Cal.

***** Flowers incomplete.

24. *CHAMA*. Perianth single, inferior, campanulate, coloured, 5-lobed. Caps. globose, 1-celled, 3-valved, 3-seeded.

3. DIGYNIA.

* Flowers unisexual, inferior.

41. *GONOLYMA*. Cor. tubular at the base, campanulate or lobed-diskiform, destitute of nectariferous pores. Caps. of 1 cell, 2-valved, with the seeds fixed to the inner margin of the valves.

42. *CUCURBIT*. Cal. 4—5-lobed. Cor. campanulate, 4—5-lobed. Caps. bursting all round transversely at the base, 2-celled, with the cells 2-seeded.

** Flowers incomplete.

38. *SALICOLA*. Perianth single, inferior, 5-lobed, persistent, enveloping the fruit with its base, and covering it with its broad scarious limb. Seed single, its arillicion spiral.

36. *CASACROSTICH*. Perianth single, inferior, 5-lobed, persistent, closing upon, but not wholly enveloping, the fruit. Seed single, orbicular.

37. *HEVA*. Perianth single, semi-inferior, 5-lobed, persistent. Seed single, reniform, imbedded in the fleshy base of the Cal.

23. *ULMUS*. Perianth single, inferior, persistent, 4—5-lobed. Caps. membranous, compressed, 1-angled.
(*Scleranthus*, *Dicranum*.)

*** *Flowers of 3 petals, superior, 2-lobed. Umbellales.*

A. *Umbels with a partial and terminal involucre.*

42. *EARTHUS*. *Flowers sessile, capitate. Receptacle coriaceous, chaffy. Fruit bony.*
43. *HYDROPHYLLUM*. *Flowers in a simple umbel or capitate. Cal. 6. Petals ovate, acute, equal. Fruit without teeth (or calyx-segments), suborbicular, laterally compressed, striated.*
44. *SANTALUM*. *Umbellules clustered, subsessile, central flowers shorter. Petals obsolete. Fruit clothed with hooked bristles.*
52. *HENOCLEUM*. *Involucres deciduous. Flowers radiant. Petals 12-14. Fruit elliptical, dorsally compressed, striated.*
57. *CEASTRUM*. *Flowers radiant, those of the disk sessile and shorter. Fruit expanded with the Cal. and Style, torley.*
45. *CAPPARIS*. *Involucres undivided. Flowers radiant, those of the disk shorter. Fruit subovate, striated, rough with rigid bristles.*
46. *BACCHARIS*. *Involucres pinnatifid. Flowers somewhat radiant, those of the disk shorter. Fruit cartilaged.*
50. *PARACARPUM*. *Gen. involucres very short. Flowers nearly uniform, those of the disk shorter. Fruit ovate, compressed, striated, bordered.*
48. *CARUM*. *Partial involucres of 3 leaves, all on one side. Petals nearly uniform. Fruit ovate, tamed, with 5 undilated ribs on each side.*
47. *ROSEUM*. *Partial involucres uterine (when wanting). Petals uniform. Fruit oblong, striated, with the interior ribbed.*
53. *SANT.* *Involucres of many leaves. Petals heart-shaped, nearly uniform. Fruit nearly oval, laterally compressed and striated.*
49. *SELISTUM*. *Involucres, general and partial, reflexed. Petals heart-shaped nearly uniform. Fruit compressed, striated down the middle.*
51. *CARINUM*. *Cal. entire. Petals uniform, entire, broadest at the base, their commissures curved inward. Fruit oval, striated.*
55. *LEUCANTICUM*. *Gen. involucres membranaceous. Petals uniform, incurved at the extremity, entire. Cal. of 8 teeth. Fruit oblong, furrowed.*
54. *ACOMIS*. *Gen. involucres often wanting. Petals uniform, incurved, entire. Fruit roundish with three wings on each side.*
56. *STICH.* *Gen. and part. involucres of about 4 leaves (the*

former wanting in *S. immodicum*). Petals nearly uniform, inflexed. Fruit ovate, united.

B. Unites with partial involucres, unisexual none.

60. *Althaea*. Partial involucre of 3 leaves, all on one side, pedicels.

61. *Calceolifolium*. Partial involucre of about 8, reflexed, concave leaves. Fruit linear-oblong, glabrous, smooth, or striated.

62. *Sesuvium*. Fruit terminated with a very long rough beak. Partial involucre cut or plucked.

63. *Antennaria* (Pursh). Fruit ovate, beaked, with a short glabrous beak.

64. *Phyllanthus*. Flowers of the disk smallest. Fruit ovate, smooth, covered with the cal. and styles.

65. *Hamamelis*. Fruit nearly elliptical, compressed, beaked, swelling in the middle with 3 ribs on each side.

66. *Carya*. Fruit subovate, beaked.

(*Coma* leaf, *Sassa* leaf, *Eleocharis* fl., Div. A.)

C. Unisexual involucre rarely any, partial none.

68. *Arum*. Petals uniform. Fruit roundish, ribbed.

69. *Pumpinella*. Petals inflexed. Stigmas subglobose. Fruit ovate-oblong, striated.

70. *Meconopsis*. Petals unequal. Stigmas simple. Fruit ovate-oblong, ribbed.

71. *Sium*. Petals acute, beaked, bearded. Fruit ovate-globose, gibbous. Seeds (3-branched) reniform, angular.

72. *Calam.* Cal. involucre of 1 or very few leaves. Petals linear-emarginate. Fruit ovate-oblong, striated.

3. TRIGYNIA.

73. *Viola*. Cal. very minute, 3-lobed. Cor. of 1 petal, 3-lobed. Berry inferior, 3-seeded.

74. *Ranunculus*. Cal. small, 3-lobed. Cor. of 1 petal, 3-lobed. Berry inferior, of 1 cell, 3-seeded.

(*Scilla* leaf, *Decumbens*.)

4. TETRAGYNIA.

75. *Parnassia*. Cal. 3-lobed. Petals 3. Nectaries 3, heart-shaped, tinged with globose-headed filaments. Caps. 3-valved.

5. PENTAGYNIA.

76. *Linum*. Cal. persistent. Petals 5. Caps. globose, monospermous, with 10 valves and 10 cells. Seeds ovate, compressed.

77. *Sisymbrium*. Cal. in 10 alternating large and small segments. Petals 5, inserted on the cal. Seeds (reproductive) 5, clustered in the bottom of the cal. (Affined to *Abies* and *Aprunus*, and of the Nat. Ord. *Ranuncul.*)

73. *STACHIS*. Cal. of 1 piece, inflexibuliform, pointed, scarious. Petals 5. Prothizant with the cal. And 1.

(*Cerastium annuus*.; *Spargula ang.*, *salv.*, *perfoliata*; *Decumbens*.)

6. HEXAGYNIA.

76. *DANEA*. Cal. 3-lobed. Pet. 5. Caps. 1-lobed, 3—5-valved, many-angled.

7. POLYGYNIA.

77. *MYOSOTIS*. Cal. of 5 leaves prolonged at the base. Petals 5, their claws tubular (scutelliform). Capsules (seeds of most authors) collected upon a very long receptacle. (Allied to *Ranunculus*.)

(*Ranunculus bulbosus*, *Polyanthus*.)

1. MONOGYNIA.

1. MYOSOTIS.

(Seeds naked.)

1. *M. sylvestris* (Wood Scorpion-grass), leaves oblongo-lanceolate with soft hairs, sometimes very long lax, pedicels (in fruit) divergent—patent longer than the 5-lobed connivent cal., limb of the cor. expanded longer than the tube. *Lehm. Suppl.* p. 53. *M. asperifolia* γ. *Sav. Fl. Brit.* p. 212*.

Hab. Woods, common. *Fl. Linnæi* M.

Stems 1 foot high, with soft, spreading hairs. Radical leaves, as in all the species, spatulate. Pedicels short in flower, then elongated and patent, at length erecto-patent, twice as long as the cal. Lower leaves upon the cor. rigid, patent, holed, upper ones longer, erect. Flowers large, bright pale blue, verticillate as those of *petraea* and *alpina*.

2. *M. asperifolia* (Rock Scorpion-grass), leaves oblongo-lanceolate hairy, sometimes short, pedicels (in fruit) patent rather longer than the connivent 5-lobed cal., limb of the cor. expanded longer than the tube. *Schreb. Fl. Austr.* n. 789. *Lehm. Suppl.* p. 54. *M. rapicula*, *E. B. t.* 3559.

Hab. Highland mountains, not uncommon, especially on the more elevated ones, &c. *Discovered* by *J. T. Mackay*. Seen *Linnæi*, *Manx*, near the summit in great profusion and abundance. *Scherballeus*, *Montgomeria* and others of the *Breathnach* range, *Barrow* and *Black*. *Fl. July, Aug.* M.

Four to six inches high, with patent hairs. Lower leaves on very long

* *Lehmé's M. asperifolia* cannot be quoted under any of the individual species here enumerated, because it was intended to include nearly all of them. That specific name should, perhaps, as *Waldstrey* has done, have been reserved to the *M. petraea*.

lobed. Flowers so compact as to be almost capsule, then lengthened into racemes. Pedicels after flowering erect, in fruit patent, a little longer than the cal. Hairs of the cal more or less hooked at their summit. Flowers large, very bright blue.

2. *M. palmata* (Marsh Scorpion-grass, Forget-me-not), leaves oblongo-lanceolate rough with short, mostly appressed hairs, racemes rather short, pedicels (in fruit) divergent twice as long as the 5-toothed patent cal., limb of the cor. expanded longer than the tube. *E. B. t.* 1973.

3. Racemes below leaf. *M. repens*, G. Don. MSS. ined.

Hab. Ditches and sides of rivers, most abundant. *B. Montbello* about Ghag. *B. Don*, and Githil hills, G. and *B. Don*. *H. summer months*. 3.

A very beautiful though common plant, and considered to be the emblem of friendship in almost every country in civilized Europe. About 1 foot high. Root creeping in the mud and often throwing up runners, as in the *H. repens* of *B. Don*, which has racemes between the leaves, or rather small leaves between the lower pedicels (not inserted at their very base), and sometimes white or yellow flowers. Hairs of the cal erect, straight, those of the leaves as well as the stem (though in this latter they are mostly appressed) vary in length and direction, especially in cultivation, as is observed by Mr. Hooker. Flowers very large, pale blue.—The cal., with six short but expanded teeth when in fruit, and its generally few but erect and appressed hairs, distinguishes the species.

4. *M. arvensis* (Field Scorpion-grass), leaves oblongo-lanceolate hairy, racemes very long, pedicels (in fruit) patent twice the length of the 5-toothed and closed cal., limb of the cor. erecto-patent about as long as the tube. *E. B. t.* 2558.

Hab. Fields and waste places. *Fl. June, July*. 3.

Five to eight inches high, hairy with patent rather rigid hairs. Pedicels twice as long as the fruit-bearing cal. Lower hairs of the cal patent, hooked.—The annual root and small flowers with long pedicels, when in fruit, are the characteristics of this species.

5. *M. arvensis* (yellow and blue Scorpion-grass), leaves oblongo-lanceolate hairy, racemes very long, pedicels (in fruit) erecto-patent shorter than the 5-toothed acute-closed cal., limb of the cor. patent shorter than the tube. *E. B. t.* 486.

Hab. Dry sterile waste places. *Fl. June, July*. 3.

From 2 to 8 inches high. Hairs long, divergent. Lower hairs of the cal hooked and patent.—Well marked by the annual root, small yellow and blue flowers (which, according to Lehman, always retain their respective colours, and do not change from yellow to blue), and above all by the short pedicels and long cal.

Scarcely any two authors are agreed with regard to the species of *Apocynum*. I have followed Lehman, who has so admirably illustrated the difficulties of *Apocynum* in a work lately published in Germany.

2. LITHOSPERMUM.

1. *L. officinale* (common Groundsel), stem erect very much branched, leaves broadly lanceolate acute serred, rough above hairy beneath, tube of the cor. as long as the cal., tube smooth. *Lighf.* p. 132. *E. R. t.* 134.

Hab. Wet uncultivated places, as near the Monastery of Bonahive at Inverness, and under the west side of Salisbury Crags, and at Ruffin, Dr. Parsons. Old walls at Mughlach Castle, Glasgow, Hepk. Armiton woods, and woods at Culross, Edinb., Mugh. *R. June.* ♀

One to one foot and a half high. Fl. pale yellow. Stam. whitish brown, highly polished, seldom more than 2 or 3 opening in each cal.

2. *L. arvense* (Clerk Groundsel), stem erect branched, leaves lanceolate acute hairy, cal. a little shorter than the cor., its segments purple when containing the ripe yellow seeds. *Lighf.* p. 133. *E. R. t.* 133.

Hab. Corn-fields, not uncommon, Dr. Parsons. Occasionally about Glasg. Fields about Duglass-hill, frequent, Hepk. *R. May, June.* ♀

Corolla white. Cal. segments three as long as the fruit.

3. *L. maritimum* (Sea-side Groundsel), glabrous, stem procumbent branched, leaves ovate obtuse fleshy glaucous. *Lohm. Append.* p. 231. *Polmonaria marit.*, *Lighf.* p. 134. *t.* 7. *E. R. t.* 368.

Hab. On the sea-coast, not uncommon among loose stones. Coast of Fife, near St. Andrews, Isle of Bute, Armiton, &c., *Lighf.* Most abundant on the shores of Buthard, Cuthbert and Orinory. Fl. July, Aug. ♀

In habit this plant is an annual; but its character it accords certainly better with *Lithospermum* than with *Polmonaria*, where it has hitherto been placed. Lower leaves on footstalks and acute, upper copious. All very minutely tubercled, though appearing smooth. Flowers somewhat recurrent, beautiful purplish blue, tube short. Cal. not prominent. Stam. smooth. Whole plant glaucous, turning almost black in drying.

3. ANCHUSA.

1. *A. sempervirens* (perennial Anchusa), leaves ovate sessile entire lower ones upon long footstalks, peduncles axillary, flowers subsessile accompanied by two leaves. *Lighf.* p. 133. *E. R. t.* 43.

Hab. Glen of Dughlan, Dr. Parsons. Donabrack, near the effluve of the water of Liff, Road sides between Crossgates and Keltie. Kinross-shire, Mugh. Banks of the Clyde above Hamilton, near Clathernack and Castlehill, Glasg. Hepk. Cuck-Miller Castle, M. Armiton *R. May, June.* ♀

The flowers are of a beautiful blue, and the shape of the pedicels, as Sir James Smith observes, rather silver-colored than submetallic-blue, and thus with difficulty distinguished from *Myosotis*. Daily

experience teaches us that the more natural the families, the greater is the difficulty of distinguishing the genera.

4. CYNOGLOSSUM.

1. *C. affine* (common *Round's-lungwort*), stem leaves lanceolate attenuate to the base sessile downy, narrow shorter than the ear. *Lightf.* p. 123. *E. B.* i. 921.

Hab. Wet places, about towns and villages, in Hamilton and Kington, Edinb. and East of the hill of Kinross, Perthshire, &c. *Lightf.* 21 June, July. *f.*

Whole plant soft to the touch, dull green, of a fetal smell. Often 2 feet high. Lower leaves on long footstalks. Stems purplish red. Root rough.

2. *C. apiculatum* (green-leaved *Round's-lungwort*), stem leaves lanceolate broad at the base shining sessile slightly hairy and scabrous especially beneath, narrow shorter than the ear. *E. B.* i. 1642.

Hab. Coast of Galloway, G. Dum. 21 June, July. *f.*

Distinguished readily by the more or less shining and lighter coloured leaves, free from pubescence, and their different figure. Radical leaves ovate-lanceolate, on very long footstalks.

5. PULMONARIA.

1. *P. affinis* (common *Lungwort*), leaves scabrous, obovate ovate-cardate petiolate, uppermost ones of the stem sessile ovate. *E. B.* i. 118.

Hab. Arden woods, abundant. Banks of N. Esk, near Keweenaw, springing. Rough. Banks of Clyde, about Dalbeth and Kestock, probably an extract of the garden. *High* 20 May. *f.*

About 2 feet high. Cauline leaves all more or less ovate, lower ones petiolate, uppermost sessile, all with short hairs, frequently spotted. Flowers purple.

6. STAMPEDEM.

1. *S. affine* (common *Gongfey*), stem winged above, leaves ovate-lanceolate attenuate at the base and very decurrent. *Lightf.* p. 124. *E. B.* i. 817.

Hab. Banks of rivers, water of Leith, opposite St. Bernard's well, and Corryon woods, Edinb., *Dr. Paterson*. Banks of Clyde, but not common. *High*. Clerk, *Mr. Swett* 21 May, June. *f.*

Two or three feet high, branched above. Radical leaves ovate petiolate. Stems in pairs, scabrous, drooping. Corollas large, yellowish white, often purple.

2. *S. suberosum* (suberos-rooted *Gongfey*), stem simple, leaves ovate-oblong attenuate at the base, upper ones only very slightly decurrent. *Lightf.* p. 1091. *E. B.* i. 1502.

Hab. First discovered, in Britain, by Mr. Taylor, opposite the water well at the water of Leith, and plentifully in Dr. Robertson's walls at North Marshes and Collingtree woods, Woodhall, *Dr. Edinb.*, and on the banks of the North and South Esk, *Wrough*. Common in

river and grows about Glasgow on banks of the Clyde as Clyde works, Dalmuir, Bostwell and Hamilton. Banks of the Calder abundantly. *Moyle*, who says that this species and the purple flowered var. of *S. offic.* are by far the most frequent in the woods of Glasgow. *Clark, Mr. Asch.* Shady woods and river banks, frequent. *D. Don* Fl. July. 3.

Much like the last, but simple, or only very slightly branched above. Upper leaves, from which the peduncles spring, generally in pairs, large, ovate-lanceolate, a little decurrent; whereas those of *S. offic.* are very narrow and running down into winged appendages to the stem.

7. BORAGO.

1. *B. officinale* (common *Borage*), lower leaves somewhat attenuate at the base, segments of the cor. ovate acute spreading. *E. B. t.* 26.

Hab. Scarcely an indigenous native of Britain. Road sides and among rubbish, as at Bannhead, *Albough*. About Glasgow, but generally near gardens, *Moyle*. Fl. June, July. 2.

Whole plant very lax. Radical leaves ovate or oblong, petiolate. Stem leaves petiolate and cored at the base, superior ones sessile. Cor. large, brilliant blue.

8. ASPERUGO.

1. *A. procumbens* (German *Mosherst*). *Lighf.* p. 123. *E. B. t.* 161.

Hab. Waste places, but not common. By the church at Dunbar, *Lighf.* (I found it in 1808 plentifully among the ruins of the castle at Dunbar.) *Guthrie Litch, Mr. Asch.* and *Mr. Stewart*. Fl. June, July. 2.

Stems procumbent, angular, rough with short hooked prickles. Leaves oblong-lanceolate, solitary, or opposite, or 2 or 4 usually from the same point of the stem, lower ones petiolate, all rough and slightly bipect. Flowers blue, scillary, solitary. Peduncles short, at first erect, then curved downwards. Cal. small, much enlarged in fruit.

9. LYCOPUS.

1. *L. arvensis* (small *Engelm.*), leaves lanceolate rugulose-denticulate very lax, cal. erect white in flower. *Lighf.* p. 123. *E. B. t.* 143.

Hab. Corn-fields and hedge-banks, common. Fl. June, July. 2. Whole plant very lax, hairs or bristles seated on a white cottony felt. Lower leaves lengthened into a petiole; upper ones sessile unimbricated. Racemes leafy. Flowers bright bluish. Differing from *Stachys* only in the curvature of the tube.

10. ECHINUM.

1. *E. vulgare* (common *Piper's Engelm.*), stem herbaceous simple lax with tubercles, leaves lance-lanceolate bipect, flowers at lateral spikes, stamens longer than the cor. *Lighf.* p. 123. *E. B. t.* 181.

Fls. Corn-fields and weep-sides, not unfrequent, as about Wicksbury and Kingsboro, and at Charlestown, Lord Algon's Pine-woods and under Arthur's Seat, *Lichtf.* About Olney occasionally, among rubbish, but generally near houses and gardens, *Wick.* Dun-Blair woods, and Petterhead, frequent, Arno sparingly, *St. Mary's.* *R. June, July.* 4.

Two to three feet high. Radical leaves spreading petioled. Spikes of flowers lateral, arcuate, recurved, forming, in fact, upon the stalk one long common spike, or raceme. Cor. most beautiful, at first reddish purple, then brilliant blue. At Duncansby, Cuthberts, very dwarfish and with white flowers.

11. PRIMULA.

1. *Pr. vulgaris* (common Primrose), leaves dentate rugose, scape one-flowered, back of the cor. plane. *Lichtf.* p. 135 (*Pr. Fuchs* γ.). *E. B. t. 4.*

Hab. Woods, hedge-banks and pastures, abundant. *R. Apr. May.* 2.

2. *Pr. elatior* (Grisp), leaves dentate rugose contracted below the middle, scape umbellate, back of the cor. plane. *Lichtf.* p. 136 (*P. Fuchs* β.). *E. B. t. 513.*

Hab. Collingtree woods, on coast between N. Queensbury and Inverkeithing, *March.* *R. Apr. May.* 2.

3. *Pr. Fort.* (common Cowslip or Polyp), leaves dentate rugose contracted below the middle, scape umbellate, flowers decussing, back of the cor. concave. *Lichtf.* p. 135 (*Pr. Fuchs* α.). *E. B. t. 5.*

Hab. Pastures and woods. Bothwell and Woodhall, but introduced and not indigenous about Olney, *Wick.* *R. May.* 2.

Mr. Hooker, as well as other Botanists, maintains the opinion that the *P. elatior* is a hybrid produced by the other two.

4. *Pr. farinosa* (Duff's-eye Primrose), leaves crenate mostly nearly basally, scape umbellate, flowers erect, back of the cor. plane. *Lichtf.* p. 137. *E. B. t. 6.*

Hab. Wet mountain pastures, but not very common, *Lichtf.* Pastures by Highmore and Arncliffe, South-Island, east coast of Cuthberts, and in Olney, but very dwarfish, *St. Mary's and Wick.* *R. June, July.* 2.

One of the most elegant of all plants. The powdery substance on the lower and scape has a musky smell. Petals purple with a yellow eye.

12. MENYANTHES.

1. *M. trifloria* (common Black-bell), leaves ternate. *Lichtf.* p. 137. *E. B. t. 493.*

Hab. Marshy places, in pools of water, abundant. *R. June, July.* 2.

Stems spreading. Leaves on long petioles, ternate, lobes serrate, obscurely spotted, the base of the leaves is standing, from whence springs the flower-stalk supporting a raceme or cyme of several flowers. Petioles short, truncated. Cor. infundibuliform,

3-lobed, pale reddish, its upper side clothed with long, white, filicose appendages.—*Leaves*, used as tea, considered by the Highlanders to strengthen weak stomachs, *Dr. Stuart*.

13. *LYSIMACHIA*.

* *Polemonis nungiflorae*.

1. *L. vulgaris* (yellow *Loosestrife*), leaves ovate-lanceolate opposite ter- or quaternate, pedicel terminal. *Lighf.* p. 338, *E. B.* i. 761.

Hab. Wet shady places, and the sides of rivers. Side of Loch, *Lighf.* Banks of Clyde at flowing bay, *Kennel's* basin, *Glasg.*, *Hopk.* Castle Loch, of *Lochnathan*, *Dumfriesshire*, is a field by the roadside opposite the hill of *Dumbuck*, *Dumfriesshire*, *Alloch.* In the Loch of *Manterth*, *Rev. Dr. Graham Dalziel*, *Dr. Brown*, *Fl. July.* 2.

Erect, two to three feet high. *Leaves* strictly sessile, glabrous or downy beneath. *Pedicels* large, leafy, much branched. *Corolla* large.

2. *L. alpestris* (upland *Loosestrife*), leaves opposite lanceolate, extremely pedunculated lateral. *E. B.* i. 176.

Hab. Watery places, rare. Mingle of a drain in a marsh beyond *Pentil*, north side of the road, near the west end, *Hopk.* Edge of a lake to the N. of *Glasgow*, *Fl. Scot.*, where Mr. *Hopkiss* has sought for it in vain. Mixture of *Reynolds* and *Balgavon Lakes*, *Angus-shire*, frequent, and *Dunblathin Loch*, *Edinb.*, *Dr. Don*, *Fl. July.* 2.

Stems not to two feet high. *Flowers* numerous, small, crowded in axillary, pedunculated racemes. Cor. deeply cleft into very numerous segments, yellow, and as well as the cal. spotted with orange.

** *Polemonis 1-florae*.

3. *L. Nemorosum* (yellow *Pimpernel*, or *Wood-Loosestrife*), leaves ovate acute, stem creeping, pedicels axillary, calyxine segments linear-ovulate, stamens anagath. *Lighf.* p. 148, *E. B.* i. 557a.

Hab. Woods and shady places, frequent. *Fl. summer months.* 2.

4. *L. Nemorosum* (*Minoris*), leaves subovate obtuse, stem procumbent, pedicels axillary, calyxine segments ovate acute, stamens glandular. *Lighf.* p. 158, *E. B.* i. 529.

Hab. Shady places and pastures. Banks of the Clyde at *Kennel's* and *Bathie's*, *Hopk.* Shady banks of the *Ed.*, *Angus-shire*, abundant, *Dr. Don*, *Dalziel*, *Dr. Brown*.

14. *ANAGALLIS*.

1. *A. arvensis* (marble *Pimpernel*), leaves ovate sessile dotted beneath, margins of the cor. broadly and very obtusely serrate pinnate-glandular. *Lighf.* p. 128, *E. B.* i. 325.

Hab. Corn-fields, abundant. *Fl. June, July.* 2.

Flowers scarlet.

2. *A. arvensis* (blue *Pimpernel*), leaves ovate sessile dotted be-

mouth, margin of the cor. dentate scarcely at all glandular.

E. B. t. 1823.

HAB. Corn-fields, rare. About Glasgow with the former, said to grow about Lonsack, High Darglass, on the Clyde, *Mr. Stewart*. Fuchs on the banks of the Tay, near Dirlwin, *Mr. Murray*. Fl. July. ☉

Flowers bright blue.

I have frequently compared, in England, wild specimens of these two species, and French cultivated ones in the garden of my excellent friend P. Moët, Esq. at Cuxes Mills, Edinb., and find no difference but in the colour and margin of the corolla. These marks, however, seem constant. Both are more or less procumbent and the leaves are alike in both.

3. *A. trachelis* (*Rag Purslane*), stem creeping filiform, leaves ovate or roundish petiolate. *Lichtf.* p. 139. *E. B. t.* 530.

HAB. Rags, not uncommon, *Lichtf.* Rare about Glasgow; banks of the Clyde at Ardock cottage, *Alph. Murray*, ground on the banks of the Eik, near Inveresk; Gallow Links; Isle of Bute, near Rothay, *Maugh.* Frequently with, *Mr. Stuart*. Quarrelberry, *Mr. Stewart*. Port Glasgow, *Mr. North*. Bells, Bute, Arisa and Gormack, *Mr. Murray*. Fl. July, Aug. ☉

A beautiful little plant, two to four inches long. Leaves small. Flowers large in proportion, on rather long pedicels. Cor. subcampanulate, pink or rose colour.

12. AZAREA.

1. *A. procumbens* (*Trailing Azaræ*), stems spreading procumbent, leaves opposite elliptical glaucous their margins revolute. *Lichtf.* p. 120.

HAB. Dry barby ground, near the summit of many of the Highland mountains, as on Ben More in Breadalban, Ben Crouchan in Angushan, Ben-an-Srro, &c.; about Loch Urr in Inverness-shire, and sparingly upon Ben Lomond (where it is annually becoming more rare, *Mr. Murray*). *Lichtf.* 3 E. Shoulder of Ben Yarlach and on Ben Glen, &c., *Mr. Stuart*. Benvalart, near Inverness, *Mr. Anderson*. Ben Ferring, by Loch Ericht, *Mr. Barrer*. Ben Wynt, *Mr. Nisbet*. Fl. July. ☉

Plant growing in tufts of various sizes. Stems very woody, leafless below. Leaves small, almost like those of Thyme, very smooth and glossy, rigid, channelled down the middle. Flowers subcylindrical, terminal, rose-coloured. Abundant in June and still more so in November.

13. CONVULSULUS.

1. *C. arvensis* (*small Bind-weed*), stem climbing, leaves opposite then lobes acute, pedicels mostly 1-flowered, bracts minute remote from the flower. *Lichtf.* p. 140. *E. B. t.* 512.

HAB. Corn-fields, frequent, *Lichtf.* Not common about Glasgow, *Alph. New Cathart*, *Dr. Brown*. Fl. June, July. ☉

Flowers rather small, rose-coloured. Root running very deep in the ground and difficult of extirpation.

2. *C. Sepium* (great *Stink-weed*), stem climbing, leaves angulate, the lobes truncate, peduncles 4-sided single-flowered, bractlets large heart-shaped close to the flower. *Lichtf.* p. 143. *E. B. t.* 313.

HAB. Moist heigths, but not common. Near Dunbarton, Dr. PARSONS. Hedge by the road-side leading from Abbey-hill to Leith, Dr. FOLEY. Frequent about Glasgow, fields at Hamilton Farm and Bogleside, *Staph.* N. Banks of the Clyde, 4 m. below Glasgow. *Staph.* *Fl.* July, Aug. *Y.*

Much larger than the last in every part. Flowers very large, showy, pale white.

3. *C. Soldanella* (Sea *Stink-weed*), stem prostrate, leaves reniform fleshy, peduncles 1-flowered 4-sided, their angles winged. *Lichtf.* p. 143. *E. B. t.* 314.

HAB. Sea-shores in sandy places, frequent, as on the western coast of Caithness between Macleodburgh and Bar, and Isle of Orkney phly. *Wholly, Lichtf.* Near the Elg, *Schield.* Sandy fields between Troon and Irvine, *Mr. M'Nab.* Near Ayr, *Mr. Murray.* *Fl.* July, Aug. *Y.*

Four to eight inches long. Flowers few, large, rose coloured. Bractlets large, ovate, close to the calyx.

17. POLEMONIUM.

1. *P. carolinianum* (Jacob's Ladder), leaves pinnate, lower erect, cal. longer than the tube of the cor. *E. B. t.* 14.

HAB. Close to E. of S. Queensberry, growing with *Arvensis arvensis*, *Staph.* Arbutus woods, *Mr. Arbut.* Delvin woods, *Mr. Murray.* *Fl.* July. *Y.*

One to two feet high. Stem angulate. Flowers large, blue, sometimes white.

18. CAMPANULA.

1. *C. rotundifolia* (round-leaved *Bell-flower*), glabrous, radical leaves subterreus-cordate crenate, corolla even linear entire. *Lichtf.* p. 141. *E. B. t.* 366.

HAB. Dry and hilly pastures, frequent. Flowers white, flate and as Aschmunder and Montrose, *Mr. Murray.* *Fl.* Aug. Sept. *Y.*

The radical leaves soon wither, and thus this part of the specific character is often wanting. Whole plant slender, general. *Poult.* *Fl.* *Flowers* drooping.

2. *C. persicifolia* (Peach-leaved *Bell-flower*), glabrous, radical leaves alternate lengthened into a petiole, those of the stem linear-lanceolate subterreus sessile remote. *Lin.* *Sp. Pl.* p. 222. *Don, Farr.* n. 160.

HAB. Woods near Colten, apparently indigenous. C. Don.

Segments of the cal. linear-ovate, acuminate. Cor. very large, spreading.—Perhaps the extent of a garden: but as an inhabitant of the northern parts of France, of Germany, Denmark and even Sweden, it is by no means unlikely to be a native of Britain also.

3. *C. latifolia* (spreading Bell-flower), leaves ovate-lanceolate sessile toothed, stem quite simple rounded, flowers axillary pedicelled erect, calyx glabrous, fruit drooping. *Lighth.* p. 141. *E. B. t.* 303.

HAB. Sides of dingle at the foot of mountain in shady places, not infrequently, as at Cornland rocks, near Looe, & Teymouth hermitage, and by the hills of Monow, near Teymouth, *Lighth.* Col. Ingle and Roselyn woods, Mough. Not infrequent near Edin, and in Kierow-shire, in woods, Mr. Drury. Banks of the Clyde at Dalkeith and Kewdale (with white L., Mr. Murray); and woods at Crookshank and Cornubank, *Steph.*

Two to three feet high. Cal. coriaceous. Cor. very large.

4. *C. raphanoides* (creeping Bell-flower), leaves cordate-lanceolate sessile umbrous crinate, stem branched, flowers axillary several drooping axillary forming a spike, segments of the cal. patent. *E. B. t.* 1268.

HAB. Woods rare, Blue. Dr. Sturmius in E. Bot. Corn-fields 2 to N. W. from Edinbly, Mr. Schimper: considered there a troublesome weed by the farmer on whose land it grows. *Fl. July, Aug. 2.*

Two feet high. Leaves narrow spread. Flowers large. Cal. entire, rough.

5. *C. Trachelium* (Nittle-leaved Bell-flower), stem angular, leaves petiolate peristyle lanceolate acutely serrated bipect at well as the cal., pedicelled few-flowered axillary. *Lighth.* p. 142. *E. B. t.* 13.

HAB. Shady places, but not common, *Lighth.* On the old walls of Magsack Castle, *Steph.* *Fl. July, Aug. 2.*

Leaves much like those of the Nettle, whence its English name.

6. *C. glomerata* (clustered Bell-flower), stem angular simple nearly smooth, leaves umbrous crinate oblongo-lanceolate, radical leaves petiolate, cauline ones semispherical, flowers sessile mostly in a terminal cluster. *Lighth.* p. 142. *E. B. t.* 30.

HAB. Dry mountainous pasture, but not very common, *Lighth.* Hills betwixt Penryn, Ffestive, Mr. P. Neill. Looe near Gosford, Mough. Firth of Forth and along the coast, Mr. Drury. Monow and Abovack, Mr. Stewart.

From 3 or 4 inches to a foot high. Stems rather large, upright.

7. *C. Andersoni* (Joy-leaved Bell-flower), stem lax filiform, leaves all cordate ovate-lanceolate bipinnate glabrous. *E. B. t.* 75.

HAB. Moist shady places. First discovered by Dr. Brown near the shores of the Clyde 2 or 300 yards to the westward of Clough Light-house, Arbroathshire. Ardgowan, the seat of Sir Michael Shaw Stewart, on the lochs, Mr. A. Edgar, and Mr. Murray. Abundant in the immediate neighbourhood of Inverack, Mr. W. McDermott. *Fl. July, Aug. 2.*

A very slender and elegant plant, growing in low tufts. Petals long, mostly terminal. Flowers half an inch long, at first drooping, pale purplish blue.

19. JASIONE.

1. *J. maritima* (*Sharp's Bit or Sharp's Scabious*). *Légatf.* p. 504. *E. B. t.* 882.

HAB. Dry hilly pastures, *as at Chalfonts, by Hamilton, at Frodo Castle, on the Isle of Arran, &c. *Légatf.* Dry sandy places about Clong, frequent. *Boyle.* Fl. June, July. ☼

Stem 2—24 inches high, branched upward. Leaves rough, oblong-linear entire. Flowers bright blue, in terminal dense hemispherical heads, with a many-branched involucrum. Cal. small, superior, 2-toothed. Cor. not into 5 deep segments. Anthers united at the base; and then was placed in the class *Synsperma* by the older writers.

20. LOBELIA.

1. *L. Dortmanna* (*Winter Lobelia*), less as linear 3-lobed anthers, scape nearly naked, flowers racemed. *Légatf.* p. 505, t. 21. *E. B. t.* 140.

HAB. Frequent in almost every fresh water lake in Scotland, and particularly in the Highlands and western isles, growing near the edges of the water, *Légatf.* In Sandwick and Mullach lakes, near Oban, plentifully. *Boyle.* Fl. August. ☼

Leaves about 2 inches long, immersed in the water, erecto-pinnate, a little curved backward, with two lobes or leaflets. Scape branching above water, with 1 or 2 nodes near the base, rounded, 1 foot high. Flowers distinct on the raceme. Peduncles short, with a small bract at their base, single-flowered. Flowers pale blue, a little drooping. Cal. tubular. Cor. subcamphylloides, slit down on the upper side, back of 5 irregular spreading segments, a little bearded at the base. Fruit erect.

21. IMPATIENS.

1. *I. Noli-me-tangere* (yellow *Bedstraw*), joints of the stem swelling, leaves acute serrated petiolate, peduncles solitary more-flowered. *E. B. t.* 897.

HAB. Moist groves. Abundant in a wet glen at Chalfonts, perhaps escaped from a garden. *Boyle.* Fl. July, Aug. ☼

Stem 1 foot high, rounded, much-branched. Flowers large, yellow, spotted with orange. Cal. of 2 yellow green lobes. Caps. bursting elastically and scattering its seeds with considerable force.

22. VIOLA.

* *Stigma* small, recurved (sagittate unduloid).

1. *V. Alata* (*Hoary Violet*), stemless, leaves cordate rough, as well as the petioles and capsules, with hairs, cal. obscure. *E. B. t.* 894.

HAB. Woods and pastures. Blackford hills, and heath between Cockscarle and Gifford, *Boyle.* Gifford hills, E. Lothian, *Mr. Johnston.* Fl. May. ☼

Flower stalks taller than the leaves, and bearing below the middle two small bracts.

2. *V. adreata* (Maced Violet), stemless, throwing out runners, leaves heart-shaped glabrous, as well as the petioles, cal. obtuse. *Lightf.* p. 347. *E. B.* t. 619.

Hab. Hedges and banks, common. *E. March, April, &c.*

Leaves broader than the last, glabrous or nearly so. Flowers larger, deeper purple, often white. Pair of bractlets above the middle of the petiole.—The *Barbet* of the Turks, according to Hæmshagen, is made of these flowers and sugar. Used as a cosmetic by the Highland ladies of former times, as appears by the following lines transcribed from the Gaelic, and given in *Lightf.* "Anocht thy face with yont's milk in which violets have been infused, and there is not a young person upon earth who will not be charmed with thy beauty."

3. *V. palustris* (Marsh Violet), stemless, leaves reniform quite smooth velvety beneath, cal. obtuse, spur very short. *Lightf.* p. 308. *E. B.* t. 444.

Hab. Bogs and marshy grounds, not unfrequent. *E. May, June, &c.* Flowers very pale.

4. *V. arvensis* (Dug's Violet), stem at length ascending channelled, leaves cordate acute, stipules long dentate-gibbous, cal. acute. *Lightf.* p. 308. *E. B.* t. 635.

Hab. Woods, banks and pastures, frequent. *E. April, May, &c.*

5. *V. lutea* (cream-coloured Violet), stem ascending, leaves ovate-lanceolate smooth, stipules dentate, cal. acute. *E. B.* t. 448.

Hab. Hilly pastures, near Fochles, Mayh. *E. June, &c.*

Flowers cream-coloured. Whole plant much smaller than the last, but, notwithstanding the different form of the leaves, Smith, in a subsequent number of the *E. Bot.* is disposed to consider it only a variety of *arvensis*, probably arising from poorness of soil. It is common on the sandy downs of Holland and France, and is the *V. lutea* of DeCandolle.

* * *Stipula erect, large and perforated (stipules deeply divided).*

6. *V. tricolor* (Pansy Violet, or Heron's-Bare), stem angled branched spreading, leaves oblong deeply serrate, stipules lyrate pinnatifid.

Hab. Corn-fields, frequent. *E. summer months &c.*

Flowers varying much, especially in the size and colour of the flowers.

7. *V. lutea* (yellow Mountain Violet), stem simple erect, leaves ovate-oblong serrate, stipules deeply lobed palmate. *Lightf.* p. 308 (*V. grandiflora*). *E. B.* t. 711.

Hab. Hilly pastures and mountains, common. Cullin Hills, near Gleng., plentiful, Mayh. Arthur's Seat, Mr Neil Corriehill and Fochles hills, Mayh. *E. June—Sept, &c.*

Flowers very large, showy, often yellow. When purple, the *V. arvensis* of authors. I have a singular var. brought by Mr Murray from Arona, with much broader leaves, deeper green and light yellow flowers.

22. VERBASCUM.

1. *V. Thapsus* (great *Mullein*), leaves decurrent woolly on both sides, stem simple, 2 stem. longer, glabrous. *Lighf.* p. 143. *E. B.* t. 548.

Hab. Dry sandy places, between N. and S. Worms, on the coast of Fife, *Lighf.* Waste ground occasionally about Glasgow, Calderwood, &c. Banks of the Clyde below Herdrew and Woodhall, *Highl.* Highlands, not uncommon, Mr. Forrest. Blackford-hill, Edinburgh, *Morph.* 21 July. *J.*

Stem 4—5 feet high, angular, winged. Leaves thick, excessively woolly, acute or oblong. Spike long, cylindrical, dense. Flowers heads some golden yellow, when dried in the sun giving out a hot smother smell. Almond as a cataplasma in hæmorrhoidal complaints. 3 Stem, hairy, 3 long glabrous, scarcely inaccurately figured in *E. Bot.*

2. *V. Lychnis* (white *Mullein*), leaves oblong-ovate-shaped nearly glabrous on the upper side, stem angled paniculate. *Lighf.* p. 143. *E. B.* t. 58.

Hab. Road-side. Back-roads at Stirling, called Edmonstone's walk, *Lighf.* Lanes leading from the glass-works to the Clyde, Dumbarton, *Highl.* Kilmorie, Rosalindown, *Morph.* 21 July. *J.*

Flowers numerous, rather small, cream-coloured. Leaves below very woolly. Stem hairy.

3. *V. pectunculatum* (yellow hairy *Mullein*), leaves ovate-oblong subcoriaceous pubescento-tomentose on both sides, stem rounded panicled. *E. B.* t. 487.

Hab. In a dry open Callen, *Morph.* 21 July. *J.*

Remarkable for the mucus down on the leaves, which is easily separated from the substance of the leaf. Flowers large, handsome.

4. *V. alpinum* (dark *Mullein*), leaves oblong-cordate petiolate crenate subpubescent. *E. B.* t. 58.

Hab. Hills between Seton and Gairloch, Dr. Falc. Banks of the river Esk opposite Culpin, and at Berthwick Castle, *Morph.* 21 July, Aug. *J.*

Leaves nearly glabrous, dark green. Flowers in clusters, on the almost simple long spike. Cor. rather large, yellow. Stem, with bright purple hairs.

23. HYOSCYAMUS.

1. *H. niger* (common *Henbane*), leaves unpleasant situated, leaves nearly sessile. *Lighf.* p. 144. *E. B.* t. 581.

Hab. Waste places near towns and villages. Firth of Forth, Mr. Forrest, Culterston, Dr. Brown, Rothes, Dumbarton castle, *Highl.* 21 June. ♂ or ♀.

Stem much branched, rounded. Whole plant covered with mucous, thick hairs. Leaves subcoriaceous. Cor. veined, as is the large dingy yellow cor., with brownish base—slightly narcotic.

24. ATROPA.

1. *A. belladonna* (deadly *Nightshade*), stem herbaceous, leaves ovate undivided. *Lighf.* p. 144. *E. B.* t. 582.

Hills, Hedges and waste places. King's park at Stirling and at Leven-
hill, Lightf. Banks of the Forth, near Culterst Mill, Dr. Brown.
Banks of Berwick-castle, Mr. P. Scott and Neph. Den of Dun-
naggon near Montrose, Prof. Austin. Ft. June 3.

Stems 2 feet or more high, rounded. Leaves entire, in pairs of un-
equal size. Flowers solitary, on solitary peduncles, drooping,
lilac purple. Serves as strong black, improves when taken inter-
nally; their effects best counteracted by drinking plentifully of
vinegar.

26. SOLANUM.

1. *S. elaeagnifolium* (usually *Nightshade*, or *Bitter-sweet*), stem
without thorns shrubby climbing, leaves ovate glabrous, in-
terior ones basate, corolla opposite the leaves drooping.
Lightf. p. 143. E. B. t. 543.

Hills. Moat-hedge, but not common. At the end of Dalkeith nearest
to Edinburgh, Dr. Parsons. Frequent about Glasgow, and with white
flowers, Neph. About Edinburgh and Dalquhaden, Mr. Stewart. Gars-
carnie, Dr. Graham. Banks of the Forth, above Musselburgh, and
in the water of Leith, near Waple, Neph. Ft. June, July 3.

Flowers purple, with 2 green tubercles at the base of each segment.
Anthers large, yellow, united into a pyramidal or cone-shaped figure.
Berry erect, oval.

2. *S. nigrum* (common or Garden *Nightshade*), stem without
thorns herbaceous, leaves ovate bluntly toothed and wavy,
tubercles lateral drooping. Lightf. p. 143. E. B. t. 543.

Hills. Waste places, near towns and villages, frequent. Ft. July, Sept.
3.

Flowers white. Berries splendent, black.

27. ERYTHRA.

1. *E. Cicutarium* (common *Erythraea* or *Cicutary*), stem nearly
simple, leaves ovate-oblong, flowers sessile (or nearly so) ha-
bituate-petioles, cal. half as long as the tube of the cor.
Pers. Syn. Fl. v. 1. p. 254. Lightf. p. 132 (*Gentiana Cret.*)
E. B. t. 417 (*Gentiana Cret.*).

Hills. Dry pastures, not unfrequent. Lightf. Ft. July, Aug. 3.

Stems 8 inches to a foot high. Radical leaves spreading, broader than
the cauline ones, three-nerved. Pinnules of leaves beakled near
the top of the stem, and bearing a sort of caryopsis. Flower
large, rose coloured.

2. *E. pulchella* (dwarf-drooping *Erythraea*), stem very much
branched, leaves ovate-oblong, flowers pedicellate in two pe-
riodes, cal. as long as the tube of the cor. E. B. t. 418 (*Gle-
chia pulch.*).

Hills. Sandy places, especially near the sea. Near Gifford Links,
Dr. Dunc. Ft. Aug., Sept. 3.

* May not Mr. D. Dunc. as the latter had done, have mistaken the *E. Se-
derula* for (his?) especially near Gifford Links not given as the station for
the latter by Mr. Douglas.

Stem 2—4 or 5 metres high, very slender, and much branched from near the base. Petioles spreading, distant from with a single flower-stalk between the base ones.

1. *E. deterrata* (strong Sea-side *Euphorbia*), stem simple or much branched, leaves oblong-oblong, flowers sessile capitate-pedunculate, cal. as long as the tube, deeply cleft. Don, *Forc.* [C. *parvifolia*]. *E. B.* t. 2305 (*Chrysom. lora.*).

HAB. Fruits discovered, I believe, by G. Don. Sea coast of Egypt, near Brother House, James Bruce, *Exp. of Bruce*. Gullion Lake, Muegh, Shams of the Many Fath, D. Don. *Fl. Junc.* 5.

Stems exceeding 2—3 inches high, stout in proportion to its height, very leafy, radical leaves small, lower cauline leaves almost linear-oblong. Cal. segments very long, in my specimens scarcely united by a membrane as in the two other species, and as long as the tube: but most of the characters here laid down are used by Mr. Turner to vary in specimens he has seen, and I doubt if the plant be really distinct from the *E. Crenulata*.

28. SAMOLUS.

1. *S. Falerensis* (Ground-wood or Water Pimpernel), leaves oblong, sometimes many-flowered, pedicels with a small bractlet. *Euph.* p. 142. *E. B.* t. 708.

HAB. Moist places, but not very frequent. Isle of Cypris, Light House of the Clyde and Bowling-bay, plentiful, Muegh. Lepp, Bute, and Arran, Mr. Murray. Linn-Ella, Fifehire, and Gullion Lake, near Kinloch, Muegh. *Fl. July.* 3.

Stem 8—10 inches high, rounded, glabrous, as well as the ovate sub-petiole and entire fleshy leaves. Flowers small, white. Cal. small, 5-lobed.

29. LONICERA.

1. *L. Corymbosa* (pale profusate *Flowerquill*), flowers ringent whorled terminal stalks, upper leaves ovate-petiolate. *E. B.* t. 799.

HAB. Collington woods, Muegh and Mr. Weatherhead. Centropneum-bell, and hedges near Dalmeny, Ledithgowshire, Muegh. *Fl. Junc.* 4.

Stems smooth, orange-coloured.

2. *L. Periclymenum* (common *Flowerquill* or *Woadbine*), flowers ringent capitate terminal, bractlets distinct. *Euph.* p. 143. *E. B.* t. 800.

HAB. Woods and hedges, frequent. A vine with deeply notched leaves is found in a small wood at Coldenbridge, Muegh. *Fl. July.* 4. *Stems red.* The stems of both species invariably twist in the same direction.

30. RHAMNUS.

1. *Rh. cathartica* (*Buckthorn*), spines terminal, flowers 4-cleft drooping, leaves ovate deeply serrated. *Euph.* p. 1022. *E. B.* t. 1023.

HAB. About Dundee, Mr. Tulloch. *Fl. May.* 4.

Spreading shrub. Petals very small. Stems 4-lobed. Flowers much clustered on short fasciculae, yellow green. Berries black, numerous, strongly exserted. They shed a yellow dye as on sugar cane, as does the bark a green dye, when mature.

2. *Rh. Prangula* (*Berry-bearing Alder*), upward, flowers perfect, leaves obscure smooth entire. *E. B. L.* 254.

Hab. Callan-wood, near Achnacreeve, Aghish, Mr. Smith. *Fl. May.* 4.

Small shrub. Flowers small, few, two or three together, axillary, on longish fasciculae, whitish green. Petals very minute, as well as the stem. Berries dark purple with two seeds, purgative.

31. RUONYMUS.

1. *R. europæus* (*Spindle Tree*), flowers mostly tetrandrous, peduncles compressed many-flowered, leaves ovate-lanceolate on short fasciculae, branched smooth. *Egghf.* p. 145. *E. B. L.* 362.

Hab. Woods and hedges in every place, according to *Delile*; but I found it not so well, *Egghf.* King's Park, Kilm., and near Craigmillar Castle, *Alnagh.* *Fl. May.* 4.

Shrub 2—4 feet high: bark green, smooth. Leaves opposite, glaucous, serrated, Petioles 3-lobed. Flowers small, white. Cal long. corolla and petals 4 or 5. Stem upon glands in the bark of the cal. Fruit 2-angled, but much less acutely so than in *R. latifolius*. —Berries and even leaves said to be dangerous. Of the tough wood shavings are made, and Linnaeus says it forms the best charcoal for drawing.

32. RIBES.

* Without flowers.

1. *R. rubrum* (*Common Currant*), without thorns erect, racemes glabrous pendulous, flowers nearly plane, petals dense.

Hab. Isle of Linn among brushwood, on the banks of the Sound, *Egghf.* Callan-wood, *Alnagh.* *Fl. May.* 4.

Leaves 2-lobed, doubly serrated, on longish fasciculae; a small node at base of each petiole. Flowers greenish. Fruit red, covered with the withered cal.

2. *R. petraeum* (*Rock Currant*), without thorns erect, racemes when in flower erect in fruit pendulous slightly downy, flowers nearly plane, petals bluish, bractless shorter than the pedicel. *E. B. L.* 768.

Hab. Woods near Achnacreeve, by the river-side, *G. Don.* *Fl. May.* 4.

Leaves as in the last species, but a little downy beneath. Differs from *R. spinosum* in having the fruit pendulous, but Smith doubts himself if that character is permanent. Berries red.

3. *R. alpinum* (*Barren Mountain Currant*), without thorns erect, racemes erect both in flower and fruit, flowers plane shorter than the bractless leaves shining beneath. *Egghf.* p. 145. *E. B. L.* 764.

Hab. Woods and hauses of rocks, Dr. Ferriar. *Fl. May.* 4.

Leaves small, frequently 3-lobed, lobes acute, deeply serrated. Racemes few-flowered; leaves small. Berries red.

4. *R. nigrum* (Mort. Convolv.), without thorns erect, racemes lax pubescent pendulous with a simple flower-stalk at their base, flowers campanulate, bractlets shorter than the pedicels, leaves punctate-glandulose beneath. *Lightf.* p. 146. *E. B.* t. 1291.

HAB. Woods. Wood on the bank of the Sound of Isle, with *R. rotundum*, *Lightf.* *Archibishop's* woods, Mr. E. Slater and *Maugh* Fl. Map. h.

Leaves large, 3-lobed, serrate. Pedicels long. Berries large, black.

22. *Thym.*

5. *R. Granularia* (rough Quarberry), branches prickly, leaves rounded and lobed, peduncles hairy, pedicels single-flowered with a pair of minute bractlets, fruit hairy. *E. B.* t. 1292.

HAB. Hedges and woods. Hamilton woods, apparently indigenous, *Maugh* Fl. Apr. May. h.

The thorns are by some considered undated stipules, since they spring from the point of insertion of the leaves. The *R. Gra* crops in late a var. of this, with the bractlets united for the greater part of their length, and the fruit smooth.

23. HEDERA.

6. *H. Helix* (common Ivy), leaves 3-lobed the lobes angular, basal leaves acute, umbell erect, *Lightf.* p. 146. *E. B.* t. 1297.

HAB. Rocks and trunks of trees. Fl. Oct. Nov. h.

Stems long, creeping, throwing out numerous suckers with which they adhere to hard substances. Leaves very shining, dark green, often veined with whitish lines. Flowers small, pale green. Cal. teeth very minute. Petals reflexed—tomentum made of the leaves much valued by the Highlanders as a manure for corn, Dr. Stewart.

24. GLAUX.

1. *G. maritima* (Black Salt-wort). *Lightf.* p. 147. *E. B.* t. 13.

HAB. Sea-shore in rocky places, abundant. Fl. July. h.

Stem 2—4 or 5 inches high, stout, branched, often procumbent, reddish. Leaves erect, smooth, fleshy, entire, sessile, small. Flowers small, solitary, axillary, rose coloured, with 5 obtuse spreading lobes.

25. VINCA.

1. *V. minor* (Lesser Periwinkle), stems procumbent, leaves oblongo-lanceolate their margins as well as the small imbricate teeth of the cal. glabrous. *Lightf.* p. 147. *E. B.* t. 937.

HAB. Corynch woods, Dr. Pearson. Kilmara and Shalmerick woods, Mr. Murray. Woods, Botsford, but introduced, *Maugh* Fl. Map, June. h.

2. *V. major* (greater Periwinkle), stem suberect, leaves ovate-

subcordate, their margins as well as those of the elongated subulate segments of the cal. ribbed. *E. B. t.* 514.

HAB. Woods. Dundee hill, Mr P. Reid. Collingston woods, Mough. With the former in Kelburn and Skillicie woods, Mr. Murray. *Fl. May.* ♀

Twice the size of the former in all its parts. Cor. in both mostly purple, but varying in intensity. The *diskus*, *ligula*, and *frons* (p. 514b) are highly curious in this genus.

2. DIGYNIA.

36. CHENOPODIUM.

* *Leaves reniform-ovate, fleshy.*

1. *Ch. maritimum* (Sea-side Goosefoot), leaves glabrous reniform-ovate-oblongated fleshy, flowers clustered axillary sessile. *Ligdyf.* p. 170. *E. B. t.* 623.

HAB. Sea-coast in many places. Near Mr Kenton's castle, Skye; at Glen-lorg, and Loch Yrcom. *Ligdyf.* Banks of the Clyde in Helensburgh and Aulhouse's, plentiful, *Rhysk.* Aberlady Bay, Mr. Brown. *Fl. Aug. Sept.* ☉

Perhaps the *Salicaria* (Fraser) of *E. Bot.* should be, as is done by Brown and DeCandolle, removed to that genus.

** *Leaves plane, undulate, and entire.*

2. *Ch. album* (Hinking Goosefoot), leaves ovate-rhomboid entire, flowers at dense clustered apices, stem diffuse. *Ligdyf.* p. 148 (*Ch. Falsaria*). *E. B. t.* 1034.

HAB. Waste places and under walls, especially near the sea. Falloway Leids, Edinb.; Mough. *Fl. Aug.* ☉

Leaves greeny in the leaf, and covered with a pale velvet substance, which gives out a most detestable odour, compared to petrel salt fish. *Leaves petiolate, erect.*

3. *Ch. polygynum* (round-leaved Goosefoot), leaves ovate cordate, margins subelymne dentate leafless, stem decumbent or erect. *Ligdyf.* p. 150. *E. B. t.* 1450 and 1. 1451 (*Ch. reniforme*).

HAB. Waste places and on rubbish, frequent. *Fl. Aug. Sept.* ☉.

Leaves petiolate, more or less erect, branches long. Stems square, often reddish. Seeds (or rather seed-vessels) brown, shining, very apparent, and very numerous.

*** *Leaves plane, notched, or lobed.*

4. *Ch. Bonae Herbarie* (perennial Goosefoot, or good King Henry), leaves triangular acute shaped entire, apices compound terminal and axillary erect leafless. *Ligdyf.* p. 147. *E. B. t.* 1033.

HAB. Waste places and archedes, frequent. *Fl. Aug.* ♀

Leaves large, dark green. Stems 1 foot high, striated—Used when boiled instead of spinach.

5. *Ch. arvense* (upright Goosefoot), leaves triangular notched,

- racemes long erect approaching the stem subsimple newly leafless. *Lightf.* p. 148. *E. B.* t. 717.
- Hab. Waste places and under walls in towns and villages. Fl Aug. ☉. Racemes erect, angular. Leaves large, truncate at their base, light or sub-glaucous green, their margins deeply and irregularly toothed. Flowers on the racemes in rather small but dense clusters, very long and erect. Seeds large, "as big as rape seed" (4th p.).
6. *Ch. vulgare* (red Goosefoot), leaves rhomboid-triangular deeply toothed and stemless, racemes erect compound leafy. *Lightf.* p. 148. *E. B.* t. 1721.
- Hab. Droughs and under walls. Fl Aug Sept. ☉. Darker green than the last. Stems reddish. Leaves lengthened out at the base, by no means truncate. Racemes very compound. Seeds small.
7. *Ch. macula* (Nettle-leaved Goosefoot), leaves ovateapproaching to rhomboid acute toothed shining, racemes much branched suberect leafless. *Lightf.* p. 148. *E. B.* t. 1722.
- Hab. Under walls and in waste places about towns and villages. Fl Aug. ☉. Branches of the raceme spreading. Flowers rather distant. Seed unpleasant.
8. *Ch. spicatum* (Maple-leaved Goosefoot), leaves cordate angulato-dentate acuminate, clusters very much branched subsymmetrical divergent leafless. *Lightf.* p. 149. *E. B.* t. 1819.
- Hab. Waste places and in cultivated fields, but not common. *Lightf.* About Edinburgh, G. Don. Fl Aug. ☉. Stems slender, leaves large with very prominent tooth or angles. Racemes much like the last, but branches more distant and spreading.
9. *Ch. album* (white Goosefoot), leaves ovate inclining to rhomboid acute entire at the base upper ones oblong perfectly entire, racemes branched somewhat leafy, seeds smooth. *Lightf.* p. 148. *E. B.* t. 1723.
10. Leaves greener more entire, racemes elongate more branched. Hab. Waste places, droughs, &c. common. Fl July, Aug. ☉. Leaves covered with a sticky substance, varying in width and in the crown or blunt tooth of the upper half of the margins of the leaves. When newly entire, it is the *Ch. viride* of Linn.

32. BETULA.

1. *B. maritima* (Sea-side Birt), stems procumbent at the base, flowers solitary or in pairs, calyxine segments entire. *Lightf.* p. 150. *E. B.* t. 246.
- Hab. Sea-shore, in stony places. Ross Island, Mr. Perrow. Opposite Gallowgate, Mr. P. Kell. Sea-shore, near Edinburgh, Murch., and Mr. Swerdlow. Near Cromford, Dr. Hille. Fl August ☉.
- Stems large, thick, woody. Stems tall, branched, angular. Reddish brown subacute, succulent, entire, waved. Spikes of flowers numerous, leafy, leaves small at the base of each flower or pair of

flowers greenish. — DeCandolle says this is identical, notwithstanding it has the common best, *S. calycata*, in having one or two instead of three or four flowers in the axil of the upper leaves. This is certainly a welcome food when boiled.

38. *SALSOLA*.

1. *S. Eal* (probably *Salsola*), stem herbaceous prostrate, leaves subulate spinescens scabrous, segments of the perianth margined scarious. *Lightf.* p. 131. *E. B.* t. 634.

Hab. Sandy sea-shores, Liverpool. Fl. July. ☉.

Stem angled, very much branched. Flowers solitary, pale reddish, sessile, with three leaf-like bractlets at the base of each. — Much used in some countries in the manufacture of alkali.

39. *ULMUS*.

1. *U. campestris** (common Elm), leaves doubly serrated scabrous unequal at the base, flowers axillary sessile 4-lobed with 4 stam., fruit oblong naked (Sm.). *Lightf.* p. 131. *E. B.* t. 1886.

Hab. Woods and hedges, common. Fl. April. ☿.

A large tree with rugged bark. Flowers in dense bracts, each subtended by a small scale or bractlet.

2. *U. glabra* (smooth-leaved or *Wych Elm*), leaves doubly serrated smooth unequal at the base, flowers axillary sessile 3-lobed, fruit obovate naked cloven (Sm.). *Lightf.* p. 132 (qualified as a var. of *U. campestris*). *E. B.* t. 2246.

Hab. Common in Scotland, in woods and hedges as far north as Ross-shire, Sutherland. *Lightf.* Fl. March, April. ☿.

Leaves narrower and smooth, except on the under side, where they are a little rough. Bark, too, smooth.

3. *U. montana* (broad-leaved Elm), leaves doubly serrated pointed rough unequal at the base, flowers on short stalks sessile 3—4-lobed with 3—4 stam., fruit roundish naked. *E. B.* t. 1887.

Hab. Common in Scotland, and certainly a native, *Lightf.* Fl. April. ☿.

A very handsome tree, with spreading branches and large leaves, and very distinct on the last aspect from the other kinds. The different species of Elm here, however, not been so satisfactorily defined as could be wished. They flower early, and, as in the case with trees in general in our climate, before the appearance of the leaves: and

* I have had no means of ascertaining whether this, or, as I rather suspect, the *U. villosus* of *E. B.* be the common Elm of Scotland; and *Lightf.*'s description does not at all help me. The characters of *U. montana* are, "Leaves doubly and sharply serrated, pointed, rough, unequal at the base. Flowers on short stalks, 3—4-lobed, with 3—4 stam. Fruit roundish, the ov. branches spreading, three lobes ovate." See in *E. B.* t. 2056. Probably both species will prove to be natives of Scotland.

the different states of the plant, the flowers, leaves and fruit, should be carefully examined from the same individual tree—*C. mucrona* produces good timber. The inner bark is esteemed antiscorbutic, and the Highlanders also make ropes of it. *Lighf* p. 1044

40. CUSCUTA.

1. *C. europæa* (greater Dodder), flowers sessile, cor. 4–5-lobed without any scale at the base of the stem, stigmas simple. *E. B. t. 379.*

Hab. Parasitic on nettles, flax, &c., &c. On flax, in a field near Munciburg, Mr. P. Neill. *Fl Aug Sept* ☉.

Stems filiform, long, red, climbing, with small tubercles for roots, perfectly leafless. Flowers clustered, pale yellowish rose colour.

2. *C. Epistemonum* (lesser Dodder), flowers sessile, cor. mostly 4-lobed with a small triangular scale at the base of each stem, stigmas simple. *Lighf* p. 1066 (*C. europæa*). *E. B. t. 383 and descr. p. 378.*

Hab. On flax, hemp, Oryza and other plants in exposed hilly situations. On flax bushes near Moland in California. Dr. Berggren. Rare about Glasgow. On flax at Hamilton and Woodhill. *High*—May not this be the *C. europ.*? *Fl July Aug* ☉. (*N^o 2* See.)

Smaller than the last, but well distinguished by the scales on the cor.

41. GENTIANA.

* *Mark of the Cor. united, not divided.*

1. *G. nivalis* (small alpine Gentian), cor. 3-lobed lobes flattened, branches steriate 1-flowered, calices leaves lanceolate. *E. B. t. 596.*

Hab. Ben Lomond, Dudding. *Fl Aug* ☉.

One inch to four inches high, rarely simple. Leaves elliptical, upper ones narrower. Flowers brilliant blue. Cor. with small segments between the larger ones. Cal. with 5 teeth and as many angles, which are tinged with reddish brown.

** *Mark of the Cor. related.*

2. *G. acaulis* (pasture Gentian), cor. 3-lobed hypocrateriform bearded in the orifice, cal. 3-lobed, segments equal. *Lighf* p. 152. *E. B. t. 596.*

Hab. Dry mountainous pastures, but not common. *Lighf*. Looks to the eastward of Carlisle, through Graham Links, Mr. Struth. Looks to St. Fergus, Mr. Murray. *Fl Aug* ☉.

Stems right as ten inches high. Stems square. Leaves ovato-lanceolate, serred. Flowers large, purple.

3. *G. campestris* (Field Gentian), cor. 4-lobed hypocrateriform bearded in the orifice, cal. of 4 leaflets two outer ones very large. *Lighf* p. 152. *E. B. t. 597.*

Hab. Upland pastures, especially in the Highlands, frequent. *Lighf*. About Kilmory and Ardrie, *High*. Hills between Pittyway and

Dunrobin, and King's Park, Edinb., Moray. Pentland Hills; Breckinrose and Balquhain, Kinross-shire, Mr. Stewart. Old Kelpieish hills, Bute and Arran, and about Olney, Mr. Murray.

Except in the above characters, much resembling the last. All the *Fruticosa* contain the bitter principle abundantly. This is said by Linn. to be used by the poor in Sweden instead of hops.

Flowers of 5 petals, superior, 2-lobed. *Uvac. lat. 18.*

A. Oboate with a petal and several anthers.

42. ERYNGIUM.

1. *E. maritimum* (Sea-shale Thyme), radical leaves rounded pointed upwards, scales of the receptacle close-set. *Lightf.* p. 153. *E. B. t.* 718.

Hab. Sea-coast in sandy places, frequent; as at Musselburgh, Dunbar, Largo in Fife, Mackintosh Bay in Caithr., Arna, &c. *Lightf.* St. Andrews, &c. Mr. Stewart. Coast of Arr., Mr. Murray. Bute, near Mount Stewart, Moray. Fl. July, Aug. 2.

Whole plant very stiff and rigid, glaucous. Leaves round. Flowers blue.—The roots are good, candied, and Linnaeus recommends the shoots, when blanch'd, to be eaten like asparagus.

43. HYDROCOTYLE.

1. *H. vulgaris* (Marsh Penny-wort), leaves petiole orbicular ovate, umbels of 5-8 flowers. *Lightf.* p. 154. *E. B. t.* 721.

Hab. Bogs and banks of lakes, frequent. Fl. June. 2.

Stems creeping, from their joints producing clusters of petioled leaves, and single flower-stalks, which are much shorter than the petioles. Flowers whitish.

44. SANNICULA.

1. *S. europæa* (Wind Sannicle), radical leaves simple, flowers all male. *Lightf.* p. 154. *E. B. t.* 98.

Woods, very abundant. Fl. May, June. 2.

Leaves mostly radical, subpetiolate, lobed and deeply serrated, almost entire. Umbels of flowers roundish, whitish.

45. CAUCALIS.

1. *C. ambrosius* (upright Hedge-Parsley), leaves bipinnate, leaflets ovate-lanceolate, umbels of many close rays, general involucre of many leaves, branches nearly upright. *Lightf.* p. 155. *E. B. t.* 987.

Hab. Hedges and waste places. Fl. Aug. 3.

Stem 2-4 feet high. Fruit covered with unarised bristles.

2. *C. infans* (spreading Hedge-Parsley), leaves pinnate, leaflets lanceolate almost pinnatifid, umbels of many close rays, involucre often wanting, branches spreading. *Lightf.* p. 155 [*C. arvensis*]. *E. B. t.* 1344.

Hab. Core-bells Isle of Lewis, near Upper-Lorn, &c. *Lightf.* Rosedale about Edinb., common, Mr. Gordon. Fl. June, July. 3.

3. *C. nodosa* (Insected *Couscous*, or *Hedge-Parley*), umbels lateral simple subsessile, stem prostrate. *E. B. t.* 193.

Hab. Waste places by roadsides, &c. Bank below Salisbury Crags, towards Duddingston Loch, and by the road-side leading from Drummore to Forth, *Scoph.* *E. B. t.* 193.

Leaves bipinnate, leaflets shortly cut. Umbels sessile, opposite the base of a leaf. Flowers reddish. Fruits very small. External parts of the umbels most likely, striped, subcylindrical.

46. DADUCUS.

1. *D. Cerata* (wild Carrot), stem ligid, leaves 2—3 pinnate, leaflets cut linear-lanceolate acute, fruit-bearing umbel corymbose, fruit bristly. *Lighf.* p. 155. *E. B. t.* 1174.

Hab. Pastures and borders of fields, common. *E. B. t.* 1174.

The origin of the cultivated variety.—In the English *D. nodosa*, the leaflets are much broader, and the fruit-bearing umbel corymbose. Is it really a distinct species?

47. HUNNUM.

1. *H. Bulbocastaneum* (common Earth-nut), general involucre of scarcely 3 leaves, leaves tripinnate linear glabrous, fruit ovate. *Lighf.* p. 156. *E. B. t.* 933 (*H. Narbonne*).

Hab. Woods and pastures, frequent.

Roots large, ovate, single, resistant tuber, from which spring the stems, about 1 foot high, and a few radical leaves. Whole plant slender.

48. CONTUM.

1. *C. maculatum* (common Hemlock), seeds without prickles, stem much branched polished and spotted. *Lighf.* p. 157. *E. B. t.* 1181.

Hab. Waste places, banks, &c., frequent. Field near the Bideford, *Glasg.* abundant. *Scoph.* *E. B. t.* 1181.

Stem 2—4 feet high. Leaves much divided in a pinnate manner.

Leaflets ovate-lanceolate, shining, serrated when bruised, held. General involucre of several short, ovate-lanceolate leaves, perfoliate and subsessile, all on one side. Fruit ovate, smooth, flattened. Highly narcotic and dangerous in large quantities: has been much used medicinally in ulcers and cancerous diseases.

49. SKLINUM.

1. *S. polaire* (Marsh Milk-Parley), lactescent, leaflets pinnatifid, segments linear-lanceolate, stem solitary striated, rays of the umbels pubescent, styles after flowering disarticulating. *E. B. t.* 229.

Hab. Marshes, rare. Ditch at Ardaraugh wood, *Scoph.* *E. B. t.* 229. Three to five feet high, much branched above. Umbels large. Involucres of many, lanceolate, submembranaceous leaves. Root said to be used by the Romans instead of ginger. *Sc.*

50. PEUCKIANUM.

1. *P. Silene* (Marsh Sulphur-weed), leaves tripinnate, leaflets

Stems internode opposite, general herbaceous of 1—2 leaves.
E. B. t. 2142.

Hab. Borders of corn-fields, near Greenhead castle, and road-sides,
 near Kelen, *Alagh*. *Fl.* July. *Y.*

Over foot to two feet high. Umbels small, distant. Flowers pale
 yellow. Fruit cone, flattened, scarcely beaked.

21. CRITHMUM.

1. *Cr. maritimum* (Sampshire), leaflets lanceolate fleshy. *Lightf.*
p. 158. *E. B. t.* 819.

Hab. Rocks by the seashore. In Galloway, Atlantic. Below Kirk-
 cuthright, Kirkcubbin, between Mull and Kirkpatrick, *Lightf.*
Fl. Aug. *Y.*

Whole plant very succulent, pale green. Leaves bi-ternate. Um-
 bels rounded. Fruit small, greenish white, acute, beaked. In-
 leaves all small, ovate-lanceolate.—Hibernia warm oceanic plants.

22. HERACLEUM.

1. *H. epiphyllum* (common Cane-Parrot), leaves pinnated,
 leaflets pinnatifid incised serrated. *Lightf.* *p.* 158. *E. B.*
t. 819.

Hab. Meadows and borders of fields, common. *Fl.* July. *J.* (*Y.*
Decand.)

Common much weed, 4—5 feet high. Leaves large, serrated, sheath
 inflated. A narrow-leaved var. is common, the *H. angustifolium*
 of some authors—Hays was very fond of this plant, and hence in
 Norfolk and Suffolk the cause of Hay-rot.

23. LIGUSTICUM.

1. *L. ovale* (Scottish Lavage), leaves ternate. *Lightf.*
p. 159. *E. B. t.* 1309.

Hab. Very frequent on the rocky coasts of Scotland. *Fl.* July. *Y.*
 Root fusiform, reckoned a good emmenagogue, dryish large, broadly
 ovate, deeply serrated, rather fleshy. Umbels large. Taken raw
 in Sept. and called *Stana*—The English *Ligusticum Coriander*
 is by no means of this genus, and, though supposed to be peculiar
 to Cornwall, has been long known as a native of Paduanet, and
 figured in *Albion*. It is the *Ligusticum sparganthe* of *Decand.* *Fl. Gall.*

2. *L. Mra* (common Spiguel, *Mra*, or *Bold-merry*), all the
 leaflets serrate-margined. *Sm. Comp.* *p.* 46. *Lightf.*
p. 157 (*Artemisia Mra*). *E. B. t.* 2243 (*Mra* *stima-*
mentum).

Hab. Mountainous pastures, not uncommon. In Lanarkshire;
 about Duffield, Forthshire, and W. Lothian, *Lightf.* *Stitchfield*
 and Cross Hill, in Edinburgh. Use. On Cuthlin Hills, and about
 Dalry, *Gray, Sept.* Loch Lomond, and N. side of Loch Ness,
Mr. Murray. Highlands, more abundant. *Fl.* June. *Y.*

Root fascicles, raised by the Highlanders as an aromatic and carminative, and its segments are the siliceous remains of former stems. Leaves linear-lanceolate, dark green, above doubly pinnate. Flowers yellowish, fruit oblong, flattened.—Remarkable for its suberose multistellate leaflets.

54. ANGELICA.

1. *A. sylvestris* (wild *Angelica*), leaflets equal ovate serrated. *Lichtf.* p. 108. *E. B. t.* 1122.

Hab. Wood woods and grassy places, frequent. Fl. July. $\frac{1}{2}$.
Plant very tall, stout. Stems purplish. Leaves bipinnate. Leaflets large, ovate, serrated, sometimes lobed at the base. Stalks of the Umbels pubescent. A. umbelligerum, which, being an inhabitant of heathy, swampy soil (Lapland), is very likely to be found also in Scotland, differs principally in the terminal leaflet being lobed. See *E. B. t.* 1261.

55. Sium.

1. *S. latifolium* (broad-leaved *Water-Parasit*), stem erect, leaves pinnate, leaflets rhombic-lanceolate equally serrated, umbels terminal. *Lichtf.* p. 108. *E. B. t.* 364.

Hab. Sides of lakes, ponds and rivulets, but rare. Grows at the corner of the King's Park, Edinb., Mr. Fisher. North of Clyde Canal 3 m. from Falkirk, towards Glasgow, Mearns. Fl. Aug. $\frac{1}{2}$.

Stems 3—4 ft high, furrowed. Fruit small. Leaflets distant, 3 to 9 on a leaf.

2. *S. angustifolium* (narrow-leaved *Water-Parasit*), stem erect, leaflets unequally lobed and serrated, umbels pedunculate opposite the leaves. *Lichtf.* p. 103. *E. B. t.* 133.

Hab. Ditches and rivulets, but not common, Dr. Parsons. Fl. July, Aug. $\frac{1}{2}$.

Much smaller than the last. Stem striated. Upper leaflets most unequal and dentate; radical ones ovate, their two lowest leaflets distinct.

3. *S. woodburnianum* (procurrent *Water-Parasit*), stem procumbent, leaves pinnate, leaflets ovate sub-equally serrated, umbels sessile opposite to the leaves. *Lichtf.* p. 104. *E. B. t.* 639.

Hab. Sides of rivulets, *Lichtf.* Fl. July. $\frac{1}{2}$.

One and a half to two ft high. Leaflets of the radical leaves sometimes with a lobe at the base as the upper ones. Fruit but slightly incurved.

4. *S. repens* (creeping *Water-Parasit*), stem creeping, leaflets broadly ovate linear-dentate, umbels pedunculate opposite the leaves. *E. B. t.* 1431.

Hab. Sides of rivers and boggy places, rare. Side of the river Forgue, a mile above the bridge of Kinn, Mr. J. T. Mackay. Gillies Loch, Mearns. Fl. July, Aug. $\frac{1}{2}$.

Stems 6—10 inches long. Leaflets 3—9.

56. Sium.

1. *S. verticillatum* (wheel-shaped *Flower-stem*), leaflets all capillary in whorled segments. *Lichtf.* p. 108. *E. B. t.* 326.

HAB. Moist pastures. About Greenock, Mr. Houston. Northside and Galloway and to Annan-side, particularly between the fern-houses of South in Harkness and the bathing place on the shore, Dr. Barron. Salt marshes not uncommon, about Glasgow. Banks of the Clyde from Bowling-bay to Helensburgh, plentiful; and at Lom, Ayr. Isle of Bute, common, *Wagh.* Fl. July, Aug. γ .

LEAVES nearly radical. A long main common petiole supports a number of opposite, capillary, divided leaflets, whose spreading makes them appear whorled. Stem a foot high, slender. Umbels few, terminal. Involucre very small.

2. *S. ruscoides* (Water Henswort), stem creeping, inferior leaves capillary-subspicuous as prior pinnatifid, umbels generally of two rays. *Lichtf.* p. 161. *E. B. t.* 337 (*Hydrocotyle*, Sm. Fl. Brit.).

HAB. Lakes and ponds that are dried up in the summer. Fl. June, July. δ ! γ !

STEMS 4—6 inches long. Most of them capillary-subdivided, a few upper ones pinnatifid, with the segments small, lanceolate. Umbels minute, scarcely longer than the partial involucre. Gens more here wanting. Fruit large, ovate, striated.

3. *S. Siegfriedii* (Cress Henswort), stem erect, leaves pinnate, leaflets broadly ovate rounded radical ones lobed, umbels at first drooping their rays unequal. *E. B. t.* 226.

HAB. Grass-field in the Isle of Tirey, Dr. Wether. Fl. July, Aug. γ . One to a foot and a half high, spreading, branched. Leaves few, mostly radical. Gens. consists of 3 linear leaves. Rays various in height. Fruit erect, ovate, striated.

57. GENANTHÆ.

1. *G. fistulosa* (common Water-Dropwort), root creeping stemless, stem-leaves pinnate their main petiole as well as the stem cylindrical tubular, umbels of very few rays. *Lichtf.* p. 161. *E. B. t.* 368.

HAB. Ditches and rivulets: as between Inverkippling and North Queens-ferry, *Lichtf.* Banks of Clyde at Bowling-bay, Ayr. Common along the coast below Greenock, Mr. Murray. Fl. July, Aug. γ .

PLANT 1—2 f high, remarkably tubular and leafless; stem leaves and leaflets, which are few and small, confined to the upper extremity of the leaves. Umbels small. Gens. involucre often wanting.

2. *G. pinnatifida* (Parsley Water-Dropwort), leaflets of the radical leaves wedge-shaped above, those of the stem leaves entire very long, pinnatifid of several linear leaves. *E. B. t.* 337.

HAB. Salt marshes, rare. Banks of the Clyde at Bowling-bay, with the *G. fist.*, and below Dumbarton, Ayr. Isle of Tirey, Dr. Wether. Near Greenock, Mr. Stark. Fl. July. γ .

STEM 1 or more high. Umbels thickly crowded, forming almost spherical heads when in fruit.

3. *G. ovata* (*Hamlock Water-Dropwort*), all the leaflets wedge-shaped cut nearly equal, involucre of many leaves. *Lightf.* p. 142. *E. B. t.* 1813.

Hab. Banks of ditches, rivers and lakes, frequent. *Fl. July.* ☉
 Three to five f. high. Distinguished by the broad leaflets even in the very youngest leaves. Color rather large.

B. Umbels with a partial involucre, somewhat loose.

58. PELLANEDIUM.

1. *Ph. aquaticum* (*Water Hemlock*), segments of the leaves divaricated. *Lightf.* p. 143. *E. B. t.* 1814.

Hab. Ditches and ponds, but not common. *Fl. July.* ☉.

Stem 2—3 f. high, very thick below, much branched, branches spreading. Leaves three pinnate or rather pinnatifid; segments small, lanceolate, spreading, dark green. Umbels opposite to the leaves, rather small.—The genus scarcely differs from *Glaucium* but in the want of a general involucre: a very unusual character; and the *l.*, consequently, the *Glaucium Phellandrium* of DeCandolle.

59. CICUTA.

1. *C. virosa* (*Long-leaved Water Hemlock, or Cow-dove*), umbels opposite to the leaves, beneath of the leaves *virosa*. *Lightf.* p. 144. *E. B. t.* 479.

Hab. Sides of lakes, but more. Sides of Loch-mad, De Farnham. Free Hill, Kenton-shire, and Marshes near Fisher Loch, Mr. Arnott. Ouseston Loch, Fife-shire, Moray. Very abundant about Glasgow, about Glasgow, Badenoch and Donquhan Lochs, and both near New Edinburgh, Moray. *Fl. July, Aug.* ☉.

Three to four f. high, branched. Root and lower part of the stem, which is very large, hollow and divided by transverse partitions into numerous cells. Leaves bipinnate, the rachis once pinnate. Leaflets lanceolate, serrated. Umbels as *Scutellaria*. A deadly poison.

60. CETHUSA.

1. *C. Cynapium* (*Fool's Paraly*). *Lightf.* p. 145. *E. B. t.* 1192.

Hab. Fields and gardens, common. *Fl. July, Aug.* ☉.

One f. high. Stem striated, branched, very leafy. Leaves glabrous, deeply or the lower ones truly pinnate, segments cruce-lanceolate, narrowly cut. Umbels terminal, on long stalks. Umbellules small, distinct. Partial involucre of 3 pendent leaves all on one side; grooved above, by which it is readily known from every other umbelliferous plant.—The smell is nauseous and it is esteemed very unwholesome.

61. SCANDIX.

1. *S. Prutenica* (*Needle Charrel*), leaflets cut into many linear segments, fruit and bark roughish. *Lightf.* p. 166. *E. B. t.* 1337.

Hab. Grass-fields, common. *Fl. June, July.* ☉.

Stem nearly a foot high. Leaves truly pinnate. Petioles involucre

pinate, their segments cut. Umbellules very small, as are the flowers. Fruit singularly large, oblong, striated, rough, terminated by a beak of 2 inches in length, scabrous at the edges.—In this genus it has been usual to place the *A. abstrusum*, *obtusum* and *Cochinchinense*: the former I agree with Preson in thinking should constitute a new genus, the two latter in uniting with the *Chlorophylla*.

62. ANTHRISCUS.

1. *A. vulgaris* (common *Anthriscus*), bristles of the fruit hooked, stem smooth, umbels sessile lateral. *Pers. Syn. Fl. v. 1, p. 803. Lightf. p. 166, and E. B. t. 143 (Scand. herb.).*

Hab. Wet places and dry banks, near towns and villages, common. Fl. June. ☼

Two f or more high, swelling under each joint. Leaves tripinnate, slightly hairy, segments lanceolate, cut, or deeply serrated. Umbellules small, with small involucres. Fruit rather large, obovate, beak smooth, about half its length, with a line down the middle.

63. CHLOROPHYLLUM.

* Fruit smooth (not striated).

1. *Ch. sylvestre* (smooth *Care-Perry*), stem a little swelling below each joint glabrous, umbels on long stalks. *Lightf. p. 167. E. B. t. 142.*

Hab. Under hedges and the borders of fields, abundant. Fl. May, June. ☼

Three f or more high, branched. Leaves triply pinnate, bristles ovate-lanceolate, deeply cut. Umbels at first a little drooping. Perical involucres of several ovate lanceolate leaves. Fruit linear, oblong, smooth and glabrous.

2. *Ch. sativum* (Garden *Care-Perry* or *Chervil*), umbels lateral sessile, stem a little swelling below. *Pers. Syn. Fl. v. 1, p. 220. E. B. t. 1362 (Scand. Compositum).*

Hab. Hedges and about gardens, frequent near Glasg. High Fl. July. ☼

Stem slender, 1½ or 2 f high. Leaves pale yellow green, delicate, bipinnate; bristles acute, cut. Umbels sessile, lateral, of five rays, pubescent. Perical involucres few, on one side. Umbellules small. Fruit large, smooth, tapering apically.

** Fruit striated.

3. *Ch. temulentum* (rough *Care-Perry*), stem rough (spotted) swelling below each joint. *Lightf. p. 167. E. B. t. 1471.*

Hab. Hedges, common. Fl. June, July. ☼

Three f or more high, rough with hairs. Leaves doubly pinnate, bristles pinnatifid or lanceolate. Fruit linear-oblong, striated. Umbels at first drooping.

4. *Ch. odoratum* (sweet *Chervil*), much deeply lobed (very large). *Lightf. p. 166, and E. B. t. 667 (Scand. herb.).*

Hab. Frequent in the Lowlands, in wetlands and waste places, but

always near houses, so that it is probably not indigenous, *Lichf.* Ardenne woods, Clark and Arden, *W. Acad.* Caroline Park, Edin., Mr. Gordon. *Fl* May. $\frac{1}{2}$

Whole plant highly aromatic, 2 ft and more high, stout. Leaves large, trihy pinnate; leaflets pinnatifid, ovate-lanceolate, entire-serrate. Disklets terminal, large. Fruit very large, linear-oblong, with deep lines; ribs somewhat angled.

5. *Ch. aureum* (Juncus-seeded Can-Parsley), pubescent, stems slightly swelling below the joints, leaflets very acuminate linear-pinnatifid, seeds coloured furrowed. *E. B. t.* 1880.

Hab. Fields between Ardenath and Montrose; also near Compton-place, Edin., G. Don. *Fl* June. $\frac{1}{2}$

Three feet or more high, branched, aromatic. Leaves tripinnate; the leaflets peculiarly attenuated, at least in the upper leaves (but the radical ones are more linear), which distinguishes this from every other British species.

6. *Ch. aromaticum* (aromatic Can-Parsley), leaflets ovate-oblong sub-acuminate serrate undivided. *Junc. Acad.* *t.* 1878. *G. Don's* *Deer, of rare Scot. Plants*, p. 7.

Hab. Near Gathra, by the road-side leading from Forfar to Ardenath, G. Don. *Fl* June. $\frac{1}{2}$

Two to three feet high, slightly pubescent below, glabrous above. Leaves bipinnate; leaflets large, undivided, or rarely with a small lobe near the base, pubescent beneath.—In this, as well as in *Ch. aureum*, there is sometimes a small general indurure.—Leaves, as *Persona* observes, resembling those of *Asperul. Pedicularis*. Has a heavy aromatic smell. *G. Don*

64. IMPERATORIA.

1. *I. Cervicaria* (*Montrose*), *Lichf.* p. 169. *E. B. t.* 1880.

Hab. Banks of the Clyde in several places, as Ardenburgh, and in the side of Bute, near Montrose-ort, but whether indigenous or not is uncertain, *Lichf.* Near Borthwick castle, Mough, and Mr. Slater. Old wall at Langland house and waste ground near Jackson, Glasg., Don. Edge of woods on the side of Glen Loch, springing by, Mr. Murray. Plantation opposite the house of Black hall, near Leitham, and at Milnathort, 2 m N. from Kintore: "a naturalized plant," Mough. Breckwood, opposite Milnathort, Glasg., *Rept.* *Fl* June. $\frac{1}{2}$

Stem 1 or 1½ ft high, leaves bipinnate; leaflets large, ovate-lanceolate, sometimes lobed, unequally serrated. Disklet large, dense, white.

C. Disklet without umbels, rarely general, never partial ones.

65. SMYNIUM.

1. *S. Glaustrum* (*Abraham*), *asclap. lures* serrate petiolate sessile. *Lichf.* p. 168. *E. B. t.* 230.

Hab. Upon the sea-coast at Dunblair, on the edge of Broomfield-shire, *Lichf.* Sea-shore below the old Castle of Broomfield-shire, between Dyson and Kirkcaldy, Dr. Walker. By the side of a rivulet at Kingswarr, and Dalrymple castle, E. Leitham, Mough. Near Colinton castle, *Argylls.* Mr. Murray. *Fl* May, June. $\frac{1}{2}$

Stems 3-4 ft. high, very stout, furrowed. Leaves bright yellow green, below or (the lower ones) three ternate, with a very broad membranous base; leaflets very large, broadly ovate, lobed and serrated. Flowers yellow green, in very dense numerous rounded umbels. Fruit almost black when ripe.

66. CARUM

1. *C. Carui* (common Caraway). *Lig4if.* p. 162. *E. B. t.* 1593.
HAB. Roads of Edinburgh towards the west, Dr. Parsons. Isle of Orkney, *Lig4if.* Meadows and pastures, occasionally about 4 ft. high in the haugh of Dalbeth, *High. B. Jan.* *J.*—Kilmahom and Britain, *B. June. J.*

Stems 1-2 ft. high. Leaves doubly ternate, cut into linear segments, of which the lowermost are deciduous. Umbels erect, stems well known officinal aromatic.

67. FIMPINELLA

1. *F. Sanffraga* (common Burnet Sanffrage), radical leaves pinnate, leaflets roundish sharply serrate, those of the stem bipinnate linear. *Lig4if.* p. 163. *E. B. t.* 407.

HAB. Dry pastures, very common. *B. July, Aug. M.*
Stems 10 inches to a foot high. Umbels at first drooping.

68. APUSM.

1. *A. graveolens* (Smallage or wild Celery), stem leaves with their leaflets wedge-shaped, stem furrowed, umbels frequently simple. *Lig4if.* p. 164. *E. B. t.* 1210.

HAB. Moistly places by the sea-side. Detached behind Musselburgh, Dr. Parsons. *B. Aug. J.*

Two feet high. Leaves ternate, leaflets large, wedge-shaped, lobed, and cut at the extremity, the lower ones are upon long stalks, and have the leaflets rounder and truncate at bottom. Umbels very small.—The origin of the garden Celery.

2. *A. Petroselinum* (common Parsley), leaves of the stem with their leaflets linear, umbels all pedunculate. *Hook. Dr. Fl.* p. 354.
HAB. Rocks by the sea-side at Dunrobin in Skye, but near McLeod's castle, Dr. Walker. Old walls near Inverkeith, on an old wall at Collieston, and by the roadside between Collieston and Dregburn, *Warrick*.—This is introduced into Hall's *Brit. Flora* as a native of England, and it has an equal right to be considered a native of Scotland, being naturalized, though originally an inhabitant of Southern

England leaflets broad and lobed. This has a monophyllous general umbels and minute parted ones, and Haller has made of it the genus *Petroselinum*.

69. AGOPODIUM.

1. *A. Podagraria* (Gart-wort). *Lig4if.* p. 170. *E. B. t.* 240.

HAB. Gardens and waste places. *B. June. M.*

One or two feet and a half high. Radical leaves twice ternate, superior ones ternate, leaflets ovate, subcuneate, unequally serrated.

3. TRIGYNIA.

70 VIRGNUM

1. *V. Lantana* (mostly *Oselder-rose*, or *wey-faring Tree*), leaves elliptic-cardate serrate veinsd dusky beneath. *Lighf.* p. 170. *E. B. & 331.*

Hab. Woods and hedges. At Sir John Hall's, in Dungeness glen. *Fl. June. 4.*

A large shrub much branched, young shoots very downy.

Flowers in large dense cymes, white. Cal. teeth very minute. Berry purplish black.

2. *V. Opulus* (common *Gardner-rose*, or *Water-Elder*), leaves glabrous three-lobed serrate and serrate, petioles with glands. *Lighf.* p. 170. *E. B. & 332.*

Hab. Moist woods and hedges, not uncommon. Auchinleavy woods, &c., Mough Woods between Hamilton and Lanark, &c. Banks of the Nidd and other streams near Inverness, Mr. G. Anderson, *Alph.* *Fl. June. 4.*

Small tree, very glabrous. Leaves large, subcordate, broad. Cymes large, with white flowers; the perfect ones small, resembling the last, shorter ones in the circumference, consisting of a very large, plane, lobed petal without, either stem, or pedicel. Flowers erect. Berries reddish purple, drooping.

71. SAMBUCUS.

1. *S. Elna* (*Dwarf Elder*), cymes with 3 principal branches, leaflets lanceolate, stipules foliaceous, stem herbaceous. *Lighf.* p. 171. *E. B. & 475.*

Hab. Way-sides, but not common. Near Dundee on the road towards Caithness road. At Duffus near Perth, *Lighf.* Road-side between Kinross and Chrennack, Duv. Cyley woods, &c., Bosc. Hedges at Gask, Perthshire, and near Collieston, Mr. Murray. Near Inverkeithing, Mr. Stewart. Field by the road from Edinb. to Dalkeith, Mr. J. F. Mackay. S. bank of the water of Leith, &c., Mough. *Fl. July. 2.*

Shrub two to three feet high, regular and furrowed. Leaves plane; leaflets serrate. Cyme large, terminal, purplish. Anthers large, purple. Berries spheroid, black.

2. *S. nigra* (common *Elder*), cymes with 5 principal branches, leaflets ovate, stem a tree. *Lighf.* p. 171. *E. B. & 476.*

Hab. Woods and hedges, frequent. *Fl. June. 4.*

A small tree, stems and branches full of light pith. Leaves plane; leaflets serrate. Cymes terminal, large, cream-coloured, swelling unpleasantly. Bark small, yellow. Berries purple black.—The bark is used by country practitioners medicinally, and the juice is employed for wines and potasses. A variety is found with lacinated leaves.

4. TETRAGYNIA.

72. PARNASSIA.

1. *P. palustris* (*Green of Parnassia*). *Lighf.* p. 172. *E. B. & 52.*

Hab. Rags and wet pastures, frequent. Fl Aug. ♀.

Leaves mostly radical, on long petioles, cordate, entire, serred, one on the stem below the middle, sessile. Stems angular, from 1 inch (as I have seen it in N. Highlands, and Orkney, with perfect flowers) to 5 or 6 inches high, angular. Flower solitary, terminal, large, very handsome, yellowish white. Petals broadly obovate. Nectaries, each on obcordate scale, with white hairs along the margin, which are terminated by a yellow, yellowish, glandular gland.

3. PENTAGYNIA.

73. STATICE.

1. *S. Arctica* (Thrift), leaves linear, scape simple bearing a round head of flowers. *Lighf.* p. 173. E. B. 4. 231.

Hab. Common on the rocky shores of the sea, in salt marshes, and upon the tops of the highest mountains. Fl July, Aug. ♀.

Heads of flowers rose coloured, intermixed with scales, and having besides 8 leaves membranaceous three-keeled general involucrum, terminating below in a shagging jagged covering to the upper part of the scape.

2. *S. Limonium* (Sea-lavender), scape panicled rounded branched, leaves glaucous ovate-lanceolate undulate obtuse nervellous tipped with a small point. E. B. 4. 192.

Hab. Coast of Gallway, near Killybegh, common, rough.

Leaves large, radical, thick, submembranous. Flowers crowded, several, accompanied with membranaceous scales, bright blue.

3. *S. verticillata* (scalloped Sea-Lavender), scape repeatedly dichotomous zigzag, the lower branches sterile, leaves spatulate acute glaucous. E. B. 4. 308.

Hab. Mull of Gallway, Mr. Goldie. Fl Aug. ♀.

Leaves small, spreading. Flowers somewhat spiked on the terminal branches of the scape, purplish. Whole plant not more than from 4 to 6 inches high.

74. LINUM.

1. *L. catharticum* (common Flax), leaves lanceolate alternate, cal. leaves acute 3-nerved, petals crumpled, stem subulnar. *Lighf.* p. 173.

Hab. Core-Bells. Fl July. ♂.

One or one foot and a half high, slender, branched above. Leaves distant. Flowers large, purplish blue. From the stem flax is made, and from the seed a valuable oil is extracted.

2. *L. catharticum* (purple Flax), leaves opposite oblong, stem dichotomous above, petals acute. *Lighf.* p. 174. E. B. 4. 382.

Hab. Common in dry pastures. Fl June, July. ♂.

Stem shorter, upright, 2—6 inches high. Flowers gracefully drooping before expansion, white, small.

75. SIBBALDA.

1. *S. procumbens* (procumbent Sibbaldia), leaves ternate, leaflets wedge-shaped triangular. *Lighf.* p. 175. E. B. 4. 857.

Has. Summit of the Highland mountains, common. Fl. July. Σ .
A small, glaucous, slightly hairy plant. Flower minute, yellow, numerous without petals. Stem, 2—7. Petals 2—3.

6. HEXAGYNIA.

76. DROSEREA.

1. *Dr. rotundifolia* (round-leaved Sun-dew), leaves radical sub-circular spreading upon rather a short footstalk, scape with a simple raceme. *Lappet*, p. 173. *E. B. t.* 547.

Has. Hags and moist heathy ground, frequent. Fl. July. Σ .
Leaves, as in the other species, covered with pedunculated round glands, which retain insects. Petals, too, in this species, hairy. Scape 2—3 inches high, glaucous. Flowers subround, small.

2. *Dr. longifolia* (long-leaved Sun-dew), leaves radical obovate tapering below into a long footstalk erect, scape with a simple raceme. *Lappet*, p. 173. *E. B. t.* 548.

Has. Hags and wet heaths. Marsh between Glasg. and Paisley. *Moqh.* Fl. July.

Scape like the last. Number of parts of the flower from 5—6.

3. *Dr. anglica* (greater Sun-dew), leaves radical oblongo-spathulate tapering down into a long footstalk erect, scape with a simple raceme. *E. B. t.* 553.

Has. Arvon, very abundant, *Mr. Murray*. Kirkcudbright moun. 6 m. from Dumfries. *Moqh.* Fl. July. Σ .

Number of parts of the flower varying from 5 or 6, as is most usual, to 8. Larger than the last, and always retaining the characters above given in the leaves. It is much more deserving the name of *longifolia* than the last.

77. MYOSOTIS.

1. *M. sileneus* (Moose-tail). *Lappet*, p. 176. *E. B. t.* 415.

Has. Corn-fields of a gravelly soil. Fl. May. Σ .

Small plant, 2—4 inches high. Leaves radical, erect, linear-spathulate, fleshy. Scape slender, bearing a single flower, small, greenish. Receptacle of the numerous germs at length becoming an inch and half or two inches long, and resembling a mouse's tail.

VI. HEXANDRIA.

1. MONOGYNIA.

* *Flowers complete, having a Cal. and Cor.*

13. *RUCCICOLA*. Cal. of 6 leaves, inferior. Cor. of 6 petals. Berry 2-seeded.

14. *PERIA*. Cal. 13-leaved, campanulate; segments alternately smaller. Pet. 6 (also wanting). Ovip. superior, of 2 cells.

** *Flowers apothecious.*

1. *GALAXORUM*. Perianth superior, of 6 leaves, the three interior ones shorter, emarginate.
2. *NARCISSUS*. Perianth superior, of 6 leaves. Nectary campanulate, pediciform, including the stem.
3. *ALLIUM*. Perianth inferior, of 6 petals; petals ovate, sessile (flowers umbellate).

*** *Flowers naked (Perianth single, pointed, without a gyno).*

10. *CONVALLARIA*. Perianth inferior, 6-lobed. Berry 3-celled. Stigma 3-germ.
6. *HYACINTHUS*. Perianth inferior, tubular, 6-lobed, or 6-partite, the segments spreading. Stem. Efficum. Caps. obtusely triangular.
9. *ASTRAGALUS*. Perianth inferior, 6-partite. Berry 3-celled. Stigma 3.
8. *MASTURDUM*. Perianth inferior, of 6 patent leaves. Seds appendiculate at each extremity. Stem hairy.
5. *QUINQUEFOLIUM*. Perianth inferior, of 6 leaves. Stem. divided at the base.
7. *SCILLA*. Perianth inferior, of 6 leaves, spreading, deciduous. Stem. Efficum, glabrous. Seds spheroidal.
4. *TULIPA*. Perianth inferior, campanulate, of 6 leaves. Style 6. Seds plane.

**** *Flowers incomplete (Perianth single, more resembling a Cider?).*

11. *JUNCUS*. Perianth of 6 leaves, glaucous. Caps. superior, 3-celled, 3-valved; valves bearing the partitions down their middle, to which the numerous seeds are fixed. (Leaves rounded, rarely plane, glaucous.)
12. *LYSICHITIS*. Perianth of 6 leaves, glaucous. Caps. superior, 3-celled, 3-valved; valves without partitions, 1 seed in each cell, fixed to the bottom. (Leaves plane, generally pilose.) (Peaks Persula, Div. *. Some Polygona, Ger. Tria.)

2. DIGYNIA.

13. *ONCHIA*. Perianth single, of 4 leaves, two inner ones larger. Not triquetrous, with a broad winged membranous margin. Embryo erect, inserted. Hill, Syst. Veget. 10, p. 28. Devent. Syn. Fl. Gall. p. 194 (indigena). Brown in App. in Ros's Voyage, vol. 2, p. 182. Devis, Dr. in Ros's Voyage, vol. 1. Rarum, Wahl. Lapp.

* According to the generally received idea of *Onch* and *On* (unless the meaning is single), it will be hard to say whether that of the *And* should be put as the other.

3. TRIGYNIA.

15. *Calochortus*. Perianth single, tubular, very long, rising from a spathe; limb campanulate, 6-lobed, petaloid. Caps. 3-celled; style united at the base.
16. *Thamnosium*. Perianth single, of 6 connate, deciduous leaves, the three inner ones inserted higher up. Anthers sessile, posterior. Capsules 3—6, united by a longitudinal receptacle.
17. *Rumex*. Perianth single, of 6 leaves. Not trigynous, covered by the three interior villiform leaves of the Perianth.
17. *Tormentum*. Perianth single, 6-petals, petaloid, with a small tripartite involucre. Caps. 3—6-celled, cells united at the base, many-seeded.

4. POLYGYNIA.

20. *Artemisia*. Cal. of 3 leaves. Petals 3. Capsules many clustered, but distinct, not spring, 1-seeded. Embryo much curved.

1. MONOGYNIA.

1. GALANTHUS.

1. *G. nivalis* (Snowdrop). E. B. L. 13.

Hab. Docks about Cullinstock, Clong, shortest, *Elyf*. Ariston woods, Etnah, in the greatest abundance, covering whole acres of ground, *Wagh* and *Mr. Stuart*. Naturalized as in England. Fl. Feb. 2.

One of the earliest heralds of spring, and, in such, independently of its general form, a general favorite. Soil moist. Leaves 2, broadly linear, glaucous-green. Flower drooping, large, solitary, white, inner segments of the perianth with green lines.

2. NARCISSUS.

1. *N. pseudo-Narcissus* (common Daffodil), spathe 1-flowered, solitary campanulate erect curled at the margin absolutely 6-claft as long as the outer segments of the perianth. E. B. L. 17.

Hab. Meadows in the neighbourhood of Colson, *Wagh*. Wood at Darcon, scarcely indigenous, *Mr. Murray*. Fl. Apr. 2.

3. ALLIUM.

* *Codium* lower plane. Stem, alternately triangular.

1. *A. acuminatum* (Small Garlic), umbels bearing bulbs compact spherical, leaves linear with cylindrical sheaths, spathe short obtuse, petals roughish on the back. *Elyf*. p. 179. E. B. L. 1233.

Hab. Foot of mountains in rocky soils, but not common, *Elyf*. Dappin, Portlambert, *Mr. Hinch*. Fl. July. 2.

Stem 2-3 ft high, leafy below, rounded, smooth. Head of purple flowers dense, small. Spathes of, generally, 3 very short, ovate, oblong segments. Each alternate filament three-pointed, the middle point bearing the anther.

*** *Caulis* Leaves pinnate. Stem all simple

2. *A. variegatum* (Macraea Garlick), umbels bearing bulbs here, leaves linear keeled, spatha very long unequal. *E. B.* t. 3633, *Han.* *Moronelevis stramonis*. East of Abovito and banks of the Ido, below Aduy castle, G. Don. Fl. July. ♀.

Three feet high, rounded, smooth, leafy below. Flowers upon long sessile stalks, pale brownish white.

*** *Caulis* Leaves rounded. Stem alternately angulate

3. *A. viride* (Crus Garlick), umbel bearing bulbs, leaves foliaceous. *Lighf.* p. 179. *E. B.* t. 1954.

Han. Dry pasture, but not very common. Under Salisbury crags, *Lighf.* *Siddonia* woods, *Gray.* *Dr. Dross.* Not uncommon about Edoles, Mr. Stuart. Fl. June. ♀.

Stem 1½ to 2 ft high. Bulbs numerous. Spathes of 2 rather small deciduous leaves. Flowers on longish footstalks, which are somewhat spread, few, erect. Petals reddish green at the base, shorter than the stem, whose filaments, as well as anthers, are more strongly protruded.

**** *Caulis* Leaves rounded. Stem all simple

4. *A. alveolatum* (streaked Field Garlick), umbel bearing bulbs here, leaves grooved above, spatha with 3 very long petals. *E. B.* t. 485.

Han. Near St. David's, Mr. Stuart. Fl. July. ♀.

One foot and a half high. Bulbs numerous. Flowers reddish, with a green line, upon long curved footstalks.

**** *Leaves* all radical

5. *A. arifolium* (broad-leaved Garlick or *Bernartia*), umbels nearly plane, leaves ovate-lanceolate or footstalks, scape triangular. *Lighf.* p. 179. *E. B.* t. 122.

Han. Moist woods by the sides of rivulets, not uncommon. Fl. June. ♀.

Flowers white. Petals without bulbs. Spathes of 2 ovate-lanceolate leaves.

6. *A. schrenkianum* (Chine Garlick), leaves rounded suboblong-lanceolate, scape rounded as long as the leaves. *Lighf.* p. 179. *E. B.* t. 2143.

Han. Pasture on the borders of Heraclea forest, and in Nether-Ides, *Argylophila*, *Lighf.* Fl. July. ♀.

One ft high. Heads of flowers compact, purplish. Stem simple. Spathes of two short ovate leaves. Petals without bulbs.

4. TULIPA.

1. *T. sylvestris* (wild Tulip), stem 1-flowered somewhat decap-

ing, leaves of the perianth ovate-acuminate bearded at the extremity, stem hairy at the base, stigma obscure. *E. B. t. 62.*

Has Field near Hamilton, *Mr. Murray.* Near Banchin, *G. Don.* *Fl.* Apr. 2.

Flowers yellow, fragrant. *Stamens* and *pollen* yellow. *Larvae* linear-lanceolate.

3. ORNITHOGALUM

* *Flowers* yellow.

1. *O. latrum* (yellow Star of Bethlehem), stem angular bearing two leaves (immediately below the umbel), flower-stalks forming an umbel undivided glaucous, leaves of the perianth lanceolate. *Lepidif. p. 190.* *E. B. t. 31.*

Has Woods, *Silbald.* Side of a rivulet near Auchtermoid, and in the Glen of Forvie, 4 m. from Cupar, Fife-shire, *Stangh.* Near Crappan, *Mr. Shillingham.* Woods at Corriechy castle, N. of Forfar, in abundance, and truly wild, *G. Don.* *Fl.* March, Apr. 2.

Plant scarcely exceeding 8 inches in height, with one long, radical, broadly lance, acuminate leaf, and two unequal but much smaller ones from the top of the stalk.

** *Flowers* white or greenish.

2. *O. umbellatum* (common Star of Bethlehem), flowers in a corymbus, peduncles longer than the bractes, filaments subulate. *E. B. t. 736.*

Has Near Glasgow, *Mr. Smith.*—Introduced into Britain. *Fl.* Apr. May 2.

Eight to ten inches high. *Leaves* linear, acuminate, grooved. *Flowers* large, few, 5—8, lower stalks very long, so that their flowers are of the same height as the upper ones, thus forming a corymbus, each having at the base a membranous lanceolate bractes. Segments of the perianth green, with a white margin, and white within.

4. HYACINTHUS

1. *H. non scriptus* (wild Hyacinth or Fere-bell), raceme numerous, perianth semi-partite the extremities revolute. *Lepidif. p. 182.* *E. B. t. 317* (*Scilla maritima*).

Has Woods not uncommon, as in Corryon woods, and on the S. side of the river opposite Legion wood, by Dalhousie, *Lepidif.* Common about Glasgow, *Depth* white &c. Banks of the Clyde opposite Dalhousie, *Depth* *Fl.* May 2.

Leaves long, linear, channelled, acuminate. *Scapes* 1 ft high. *Flower* large, purple, with two bractes at the base of each short pedicel. *Mr. Shillingham* mentions a var. with many long greenish-tinted to each flower, found in Bothwell woods.—The bulb is very much that of the true *Hyacinthus orientalis*, &c., but the perianth is much more deeply divided.

5. SCILLA

1. *S. maritima* (several Squill), root solid, corymb hemispherical

few-flowered, bractless lanceolate obtuse, leaves linear channelled, *Lightf.* p. 181 (*S. lythalis*). *E. B. t.* 22.

Hab. Rocks covered with a shallow soil, near the W., in fens and bogs abundantly; Dikerynny head, Carrigrohane, Bogs of Arris-shire and Bogs in Coast, Northern. Mr. Barry and Brook Orinny river, abundantly, and Skerband, Mr. Neil. *Fl. May*. *W.*

Plant 1-2 inches high. Leaves few, nearly as long as the scape. Flowers deep blue; bractless membranaceous.—This seems to be little known on the coast now. Smith considers it to be the *S. lythalis* of *Fl. Dan.*; and it is probably confined to the more northern parts of Europe.

8. NARTHECIUM

1. *N. ossifragum* (*Lowenherz Aspidale*). *Lightf.* p. 181 (*Aspidarrum aspf.*). *E. B. t.* 155.

Hab. Common throughout Scotland, in moist ground. *Fl. July*, Aug. *W.*

St. to eight inches high, decumbent at the base. Root creeping. Leaves all radical, uniform, equitant, striated, about half as long as the scape. Scape with several lanceolate scales, rather than leaves, running into bristles as they approach the flowers. Spike terminal solitary. Flower yellow; perianth persistent, shorter than the brown prismatic capsule.

9. ASPARAGUS

1. *A. officinalis* (*common Asparagus*), upward, stem herbaceous erect rounded very much branched, leaves setaceous linear-lance fronds, peduncles pointed in the middle. *Fl. B. t.* 322.

Hab. Sandy places by the sea-side, rare. Links near Gosford, Mough and Mr. E. J. Mughan. *Fl. Aug.* *W.*

Root creeping, throwing up numerous very erect stems, which, when cultivated in their early state, form the *Asparagus* of our tables, rarely in a wild state exceeding a foot in height. Flowers drooping, greenish white, berries bright scarlet.

10. CONVALLARIA

* *Flowers campanulate.*

1. *C. majalis* (*Lily of the Valley*), scape monophylloidal, leaves ovate-lanceolate linear, flowers racemose-spicate campanulate drooping on short footstalks. *Lightf.* p. 182. *E. B. t.* 1635.

Hab. Woods and coppices. Scotland—Waldend Methven wood, Perthshire, Ball-oh! Anstron and Collington woods, Edinb. Mough. Near the Falls of the Clyde, plentifully, Mough. Bogs of Boscup, Rev. Mr. M. Ritchie. Clonk, Mr. Strain. In a small glen called the Clough, N. of Gask, Perthshire, D. Don. *Fl. May*. *W.*

Flowers very pure white and fragrant, segments curved back. Bases red, spheroid.

** *Flowers cylindrical.*

2. *C. verticillata* (*parviflorum Solomon's Seal*), leaves lanceolate striated. *E. B. t.* 122.

- Ham. Woods**, very rare. The only station in Britain is Den of Red-chap, 4 m. N.E. of Donkeld, where it is said, in *E. Bot.*, to have been discovered by Arthur Jones, Esq. in 1792. *Fl. June*. *Y.*
- Two feet high. *Leaves* numerous, bright green, 3-4 in. in whorl. *Flowers* solitary, or with branched racemes, drooping—in Lapland, Widenberg tells us, this plant inhabits spots so wild that they are scarcely to be approached by any creature but the bear.
- S. C. multiflora* (common Solomon's Seal), leaves ovate-elliptical alternate half embracing the rounded stem, peduncles solitary 1- or many-flowered, filaments hairy, style breviter. *Lightf.* p. 189. *E. B.* t. 279.
- Ham. Woods**, but not common. About Milne castle, near Dundee, viz. in Mithrie, *Lightf.* Ruins of Magdick castle, Glam., *Moq.* Woods at Bothwell, *Moq.* *Fl. May, June*. *Y.*
- Two feet high, naked below. *Leaves* large, marked with longitudinal nerves, round; and *flowers* drooping in the opposite direction, white, greenish at the tips.

11. JUNCUS*.

* *Leaves none* (flowers all lateral).

1. *J. arcticus* (northern hard Jack), scapes smooth (soft), heads of flowers compact nearly sessile, leaves of the perianth ovate-lanceolate acute rigid rather shorter than the broadly obovate capsule. *Wald. Lapp.* p. 79. *Fl. Dec.* t. 1015.

Ham. Sands of Barry, near Dundee, *Mr. Drummond*. *Fl. July, Aug.* *Y.*

This highly interesting addition to our northern Flora was discovered in the grassy clunches, and communicated to my excellent friend Chas. Lyell, Esq. of Rosneath, by *Mr. Drummond*, a most active and intelligent botanist, and ardent naturalist, and who is about to carry on the botanical establishment, should be met with sufficient encouragement, of the late Mr. G. Don at Foch. — The root is strong, creeping far in the mud, and throwing up scapes of from 8 inches to about 1 foot in height, which altogether want the acris on the scapes of *J. planus*, and are less rigid. The great distinction, however, is in the inflorescence. There is one bractee about half an inch long, lanceolate, sub-emarginate. Heads rather than panicle of flowers, few, sometimes quite sessile, but one or two, not infrequently on peduncles about half an inch long. Perianth or floral bractee very membranous, broad, large, acute, covering wholly the very sharp pericarp and nearly the flower. Pericarp of *J. ovato-lanceolatus* bristles, acute, thick, rigid, very dark shining brown, almost black, with a paler line down the middle. The colour indeed and compactness of the flowers at once distinguish this species. Fruit obovate with a narrow, dark brown, a little longer than the pericarp.

* For a most valuable history of the British species of *Juncus* must refer to the paper of A. H. Richards, Esq., inserted in the 12th vol. of the Transactions of the Linnean Society.

2. *J. glaucus* (various local Rask), scape deeply striated (right), pedicel very much branched erect, leaves of the perianth lanceolate subulate membranous longer than the elliptical capsule. *Lichtf.* p. 183 (*J. inflatus*). *E. B. t.* 853. *Birk. in Linn. Trans.* v. 12, p. 366.

Hab. Wet pastures and road sides, occasionally, *Alph.* Not uncommon about Edinb., *Mr. Smith*. Shores on the coast of Fife (?), *Lichtf.* 11 July. γ .

Root creeping. Scape 1 foot to 2 feet high, glaucous, right, at the base covered with deep purple below membranous shading upwards. Petiole lax, erect. Flower slender, pale brown, with a basal green line down the middle of each leaflet of the perianth. Anthers also small and acuminate. Stam. 5 in my specimens.

3. *J. affinis* (soft Rask), scape very faintly striated (soft), pedicel loose very much branched spreading, leaflets of the perianth lanceolate acuminate, rather longer than the obovate obtuse capsule. *Lichtf.* p. 183. *E. B. t.* 856. *Birk. in Linn. Trans.* v. 12, p. 363.

Hab. Wet and marshy grounds, common. 11 July. γ .

Distinguished from the last by its soft, pliable, almost smooth, green scape, and spreading distans and shorter perianth, in which last particular it seems intermediate between that and the following.—*Root* creeps for planting into roots, chain-bottoms, &c., and sticks of candles are made of the pith.

4. *J. complanatus* (round-headed Rask), scape very faintly striated (soft), pedicel much branched very dense globular, leaflets of the perianth lanceolate acute about as long as the broadly ovate very obtuse capsule, stem. 3. *Lichtf.* p. 183. *E. B. t.* 1835. *Birk. in Linn. Trans.* v. 12, p. 362.

Hab. Wet and marshy ground, frequent. 11 July. γ .

Pedicel very dense. Scape much like the last, and employed for the same purposes.

5. *J. difformis* (slender Rask), scape filiform, pedicel of very few flowers (leaves nearly the middle of the calyx), capsular setaceous acute shorter than the perianth. *E. B. t.* 1173. *Birk. in Linn. Trans.* v. 12, p. 361.

Hab. Several parts of Scotland, *G. Don*. Its natural situation is the steep margins of lakes. 11 July, *Aug.* γ .

Root creeping, throwing up many slender culms, 6—10 inches high. Petiole of few flowers, pale green. Leaflets of the perianth lanceolate, subseriate. There is a small lanceolate below a tapering to a long and sharp point. The floral bractlets are few and small, whitish, pale green as is the whole flower.

²² Leaves all radicle (flowers terminal).

6. *J. squarrosus* (Horn Rask), leaves setaceous (right) grooved, pedicel terminal elongate compound, capsule elliptical ovate. *Lichtf.* p. 184. *E. B. t.* 1338.

Hab. Marshy bristly ground, common. 11 July. γ .

Whole plant very rigid, 4 inches to a foot high. *Leaves* sub-ovate, oil, about half as long as the scape. *Bractea* lanceolate, membranaceous. *Leaflets* of the perianth ovate-lanceolate, shining brown, with a pale line down the middle, and scarious at the edges. *Capule*, as in almost all the genus, topped with a short mucro, the remains of the style, pale beneath.

7. *J. capitata* (capitate Rusk), leaves filiform (soft) plane or grooved above, heads of flowers sessile terminal shorter than the bractea, leaflets of the perianth acuminate-aristate. *Wald.* Sp. Pl. 209. *J. capens*, G. Don's Fl. No. 85. and G. Don's MSS. used; *Rusk.* in *Linn. Trans.* v. 12. p. 217. *J. Rivinorum*, DeCand. Fl. Gall.

Hab. The highest parts of Ben Lomond, G. Don. It does not appear, however, on the continent, to be at all an alpine species.

Whole plant only from 2—4 inches high, succul. *Leaves* entirely sessile, about half its length, erect. *Stem* rather large, of from 2—4 flowers, sessile, occasionally proflerous, admirably distinguished by the scarious inclined bractea, with its sheathing membranaceous base (which is larger than the heads of flowers), and by the acuminate-aristate perianth. It is a very distinct species, and well figured in Steud. excellent little Fl. of Germany.

8. *J. triglochin* (three-flowered Rusk), leaves linear-subulate compressed, heads terminal erect of about 3 flowers sessile longer than the membranaceous involucre, leaflets of the perianth obtuse longer than the elliptical capsule. *Lepch.* p. 186. t. 9. *E. B. t.* 329. *Rusk.* in *Linn. Trans.* v. 12. p. 215.

Hab. Highland mountains, very common, especially the more elevated, in boggy places. Fl July, Aug. †

Four to six inches high. *Leaves* short, with sheathing bases round the stem, but truly subulate. *Perianth* two, broadly ovate, patent, deep brown, as well as the leaflets of the perianth, with paler edges.

9. *J. biglandis* (two-flowered Rusk), leaves linear-subulate compressed, heads terminal a little leavine of 2 flowers one of them pedicellate shorter than the foliaceous involucre, leaves of the perianth obtuse longer than the turbinate emarginate capsule. *Lepch.* p. 1100. *E. B. t.* 332. *Rusk.* in *Linn. Trans.* v. 12. p. 212.

Hab. Type of the Highland mountains, rather rare. Mal-glych and Ben Tormoy, in Ross-shire, De Anon. Mountains of Breckinshaw, Cairngorm, Cairn, &c. G and F Don. Gair-bell in Argyr, Ben Lomond, Ben Nevis, and on the Linn of St. Fergus, &c. Murray. Fl Aug. †.

Generally smaller than the last; most distinct in the bractea and capsule.

*** *Calce. huff.*

† *Leaves* nearly plane, but grooved above.

10. *J. austreum* (crinifered alpine Rusk), leaves subulate grooved and laterally compressed, heads generally single sessile or pa-

dimorphic shorter than the bractea, capsule ovate, valves sub-
oblong. *E. B.* t. 901. *Bark. in Linn. Trans.* v. 12, p. 311.

HAB. Sea Chalk, Dr. Street (as Bark). Near the summit of Ben
Lewer, Mr. Dickson and Mr. J. Mackay. Fies Glen, behind Craig
Cullach, Breckinane, Mr. Bowen.—Always growing in calcareous
soil. Fl. July. ♀

This interesting plant is, I believe, peculiar to Scotland, and, as far
as I know, to the places above mentioned. It is quite unlike any
other. Root showing out runners. Caud 8—10 inches high, erect.
Leaves all below radical, with sheathing membranous bases, that
one is sometimes, but by no means generally, near the summit.
Stems of long 3—5 axile flowers, of a dark brown colour. Cap-
sules almost black. Mr. Herbert describes the leaves as pointed at
the top, my specimens do not appear so. *Junus Jacquin*, with
which this has been confounded by some, is totally different, being
more allied to *J. triflorus*, quite destitute of leaves below, with never
more than one head, of remarkably numerous flowers. The figure
in *E. B.*, which my friend Mr. Herbert took fault with, admirably
agrees with my specimens of *montana*, and cannot be assimilated
with *J. Jacquin*.

11. *J. triflorus* (three-leaved Bark), sheaths fringed above at the
base of the caud leafless, bracts foliaceous very long grooved,
heads of about 3 flowers terminal, valves umbellate. *Lighf.*
p. 183. t. 9. *E. B.* t. 1482. *Bark. in Linn. Trans.* v. 12,
p. 314.

HAB. Highland mountains, abundant. Fl. July, Aug. ♀

Very unlike any other British *Junus*. Roots creeping. Lower sheaths
without teeth, a short one scarcely to be termed a leaf, and that only
in the superior of the radical sheaths. A solitary head on the stem
generally near the summit, 2 or 3 inches long, linear-sterneous.
Stem 3 under each head of 1 or 2 flowers perfectly similar to
the last just described.

12. *J. subulna* (round-fruited Bark), valves simple leafy com-
pound, leaves linear-sterneous grooved, panicle terminal com-
pound subcymose generally shorter than the bractea, capsule
notched-ovate longer than the oblong interval between the
perianth. *Lighf.* p. 184. *E. B.* t. 314. *Bark. in Linn. Trans.*
v. 12, p. 317 [*J. compressa*].

J. cernua, panicle nearly simple few-flowered, longer than the
bractea. *J. cernua*, *Bark. in Linn. Trans.* v. 12, p. 318.

HAB. Wet sandy pastures, common. ♂ Salt marshes, common,
Dr. Ross. Fl. Aug. ♀

Eight inches to a foot high. Lower mostly radical, rather long. I have
the *J. cernua** from Mr. Herbert named, but I cannot find it to
differ at all in the capsule from *J. subulna*. Both are perhaps a
little narrower at the base than at the summit.

* At first I took this plant for the *J. subulna*, and I am now by no means
sure that the Laped plant is really distinct, though it has narrower capsules.

13. *J. inflatus* (Tall Bush), calyx dichotomous above pointed, leaves alternate venoseous grooved, flowers solitary unilateral mostly sessile, capsule elliptical-oblate much shorter than the very acuminate lobes of the perianth. *Euphyt.* p. 133. *E. B. t.* 593. *Bush. in Linn. Trans.* n. 12, p. 311.

Hab. Moist and sunny places, especially such as have been overflown in the winter. Fl Aug. 13.

From 4—8 inches high. Lower lvs. slender, only one on the stem, generally near the middle. The division of the calyx, as there are called, seems properly, I think, belong to the perianth, at the base of which are filicous bristles. Very pale. Flower green, with membranous white margins to the lobes of the perianth. May not the var. β of Smith, the *Jacobs No. 14* Dill. in *Rep. Soc. for the J. Tanager*? I strongly suspect it. If so, the capsule should be as long as the perianth, besides the other characters mentioned by Dill.

14. *J. tenuis* (slender spreading Bush), calyx above shortly dichotomous 5-angled, leaves linear-setaceous grooved, flowers solitary but approximate mostly sessile, capsule nearly spheroidal shorter than the very acuminate lobes of the perianth. *Parrish Fl. Am. n. 1.* p. 333. *J. gracilis*, *B. B. t.* 2174. *Bush. in Linn. Trans.* n. 12, p. 313. *D. Don, MSS. card.*

Hab. Moist mountains of Cienega, D. Don. Fl Aug. 14.

A foot or more high, approaching in many respects, in Smith's observation, to *J. inflatus*, yet really distinct. Branches loosely covered. Calyx raised to the division near the top, where it was 4-5 immediately beneath the filicous bristles. In the axils of the foliage are 2 or 3 large nearly sessile flowers, and two or three unilateral ones on the branches. The capsule is certainly very different from that of *J. inflatus*, and Smith does not appear to have seen it in a perfect state. This plant precisely accords with specimens I have received from America, through my friend F. Boott, Esq., of the *J. donae* of Fock.

15. *J. uliginosus* (Little hollow Bush), "leaves venoseous grooved, flowers three together sessile, capsule oblate longer than the perianth, calyx hollowed meeting." *Bush. E. B. t.* 594. *Bush. in Linn. Trans.* n. 12, p. 312.

Hab. Extremely common. Mr. Donnell. Fl Aug. 15.

"This plant has till lately been in a very unrecorded state. It is not readily distinguishable in some states from other species, but its black capsule will enable the botanist to separate it from *J. leucocarpus* and *acutiflorus*, and, besides the diagnostic marks mentioned under *J. apiculatus* (*J. capensis* of this work) and *J. subserotinus*, the capsule chocolate-colored cal. are very constant characters."—I give the character and some remarks from Mr. Becken's paper of the species, established by Hitchcock, and said to be so common in Great Britain, but of which foreign botanists seem to be ignorant, and with which I confess myself to be very imperfectly acquainted.

16. *Leaves rounded or subcompressed 4-angled subacutely by truncation*

perianth, which often, in a dry state, give a jointed appearance to the branch).

16. *J. subverticillata* (shrubbed Bush), "caulibus laceris subulatis nodosis-articulatis, panicula corymbosa, heads of about 5 flowers fasciculate-verticillate, capsule obtuse as long as the stunted perianth." *Buck. in Linn. Trans.* v. 12. p. 372.

Hab. Martha's N of Chang, G. Dec. Pl Aug. N.

Of this, however, I have but little, having no authentic specimen. There is a figure of the *J. subverticillata* of Willd. in Hort. a splend. del. Grev. Austr. but neither de Haen or Willdenow speak of the jointed leaves, and the former considers it to be the *J. alba* of Sm.

17. *J. scutiflora* (starry-flowered Bush), leaves nodoso-articulatis subcompressis, panicula terminali very compound, leaves of the perianth lanceolate nearly as long as the narrow acute subobovate capsule. *Lagierf.* p. 184? and *E. B. t.* 228 (*J. articulata*). *Buck. in Linn. Trans.* v. 12. p. 368.

Hab. Bays, very common, G. Dec. Pl July, Aug. N.

One foot or two feet high, erect. Leaves 3-4 in a stem, very distinctly nodoso-articulate, when dry. Petiole diffuse, in fl. spreading. Flowers two or three together, greenish brown. General structure short, pseudomonoecious, scarcely leafy.

18. *J. leucocarpus* (shaving-fringed Bush), "leaves compound, panicula terminali compound erect, 3 interior leaves of the perianth rather obscure, capsule acute trigonatus shining." *Buck. E. B. t.* 2148. *Buck. in Linn. Trans.* v. 12. p. 325.

Hab. Bays very common, G. Dec. Pl July, Aug. N.

This plant in an advanced state is easily known from *J. scutiflora* and distinguished by its large shining dark capsule. While early in flower, the best marks are the most simple paniculae and somewhat obscure cal. In my specimens from Mr. Dehens, I find no difference between the perianth of this and the *J. scutifl.*, and the shape of the capsule is acute and subobovate.

19. *J. obtusiflora* (short-flowered Bush), leaves rounded nodoso-articulatis, panicula very much compound spreading, leaflets of the perianth very obtuse as long as the capsule. *E. B. t.* 2144. *Buck. in Linn. Trans.* v. 12. p. 377.

Hab. Martha's N of Foch, Nov. D. Dec. Pl Aug. N.

Whatever doubt may be entertained as to *J. leucop.* being distinct from *J. scutifl.*, there can be none about this. Its paniculae are remarkably compound and branched, and the leaflets of the perianth are singularly obscure and narrow. My specimens do not possess ripe capsules. Dehens describes them as good and imbricate, Smith figures them as broadly obscure. All in this division have 3 longitudinal angles.

20. *J. polycephala* (many-headed Bush), leaves subulate rounded-articulatis, panicula terminali erecto-dichotomosa, branches nearly simple, heads of many flowers lateral and terminal nearly sessile, leaflets of the perianth lanceolate acute rather

shorter than the elliptical-ovate somewhat obtuse capsule.
D. Don, *MISS. ined.*

Hab. Scotch Alps, G. Don. Fl. —, Y.

This has a very peculiar habit, and differs from all the other species of the division by the very simple ramifications of the panicle and the few but large heads consisting from 1 to 3 spreading flowers, each upon a short pedicel.

12. LIZULA.

1. *L. maritima* (great hairy Wood-rush), leaves hairy, panicle subcymose doubly compound, peduncles elongate of about 3 flowers, leaflets of the perianth arcuate as long as the capsule. *Lichtf.* p. 155, and *E. B. t.* 737 (*Aster sphecodactylus*). *Hook.* in *Linn. Trans.* n. 12, p. 331 (*L. spicata*).

Hab. Woods and shady places. Banks of the river at Hudson, Dr. Pursh. Fl. May. Y.

One to one foot and a half high. Leaves broad, shining, veined. Floral bracts dilated. Caps. with a very sharp point, deep brown. Seed elliptical-ovate, with scarcely any crested appendage on the top.

2. *L. pilosa* (small hairy Wood-rush), leaves hairy, panicle subcymose, peduncles 1-flowered bent back, leaflets of the perianth acuminate erect shorter than the obtuse capsule. *Lichtf.* p. 155, and *E. B. t.* 736 (*Aster pil.*). *Hook.* in *Linn. Trans.* n. 12, p. 333.

Hab. In woods, frequent. Fl. Apr. May. Y.

Much smaller than the last. Flower dark brown, single. Peduncles reflexed. Seed with a curved appendage at the top.

3. *L. Forsteri* (narrow-leaved hairy Wood-rush), leaves hairy, panicle subcymose but little branched, peduncles 1-flowered erect, leaflets of the perianth narrow acuminate a little longer than the acute capsule. *E. B. t.* 1256 (*Aster Forst.*). *Hook.* in *Linn. Trans.* n. 12, p. 335.

Hab. Pin-woods E. of Fortin, G. Don. Fl. Apr. May. Y.

Much slenderer than the last in every part. Peduncles erect. Caps. acute, mucronated. Seed with a large oblong crested appendage on the top.

4. *L. compacta* (small hairy Wood-rush), leaves hairy, spikes sessile and pedunculated, leaflets of the perianth acuminate longer than obtuse capsule. *Lichtf.* p. 156, and *E. B. t.* 672 (*Aster comp.*). *Hook.* in *Linn. Trans.* n. 12, p. 334.

β. taller, with the spikes of flowers collected into one almost orbicular head. *J. erecta*, Pers. *Syn. fol. Hook.* *J. multiflora*, Willd. ?

Hab. Frequent in dry pastures. β. Not uncommon in moist marshy ground. Fl. Apr. Y.

From 4 to 6 or 8 inches, or as β. a foot, high. Flowers collected into short erect spikes, one of which is generally sessile, the rest pedunculate.

3. *L. spicata* (spiked IFood-root), spike drooping compound, spikelets shorter than their subulophaceous involucrate bracts; leaflets of the perianth approximate-ovate about as long as the rounded capsule. *Lightf.* p. 187, and *E. B.* 4. 1178 (*Arctostaphylos*). *Det.* in *Linn. Trans.* v. 12 p. 207.

Hab. Highland mountains, common. Fl. July. $\frac{1}{2}$.

Stem to eight inches high, slender. Leaves small, narrow, somewhat grooved, hairy only at the margins of the sheaths. Spike dark-colored, interrupted near the base. Caps. very dark shining brown, acute. Well distinguished by its drooping compound spike.

13. RHODIUM

1. *R. vulgare* (common Barberry), racemes pendulous, spike three-furrowed, leaves obscurely cuneate-nervate. *Lightf.* p. 173. *E. B.* 1. 49.

Hab. Hedges and bushy places. About Hamilton, Dr. Fourn. About Lunenburg, plentiful. *Hopk.* (Oren. Lyon, and Kalmthout), near Acushnetta, Mr. Drout. Fl. May, June. $\frac{1}{2}$.

Stem with upright, veiggy stems. Flowers yellow. Stems highly various in their formation, and in their elastic property when touched. Leaves oblong, a little curved, red, tipped with the black stigma; a pleasant acid, much used for potteries.

14. PEPLIS

1. *P. Pezizale* (Water Parsley), flowers axillary solitary, leaves obovate. *Lightf.* p. 187. *E. B.* 1. 1211.

Hab. Places that have been overflowed in the winter, not uncommon. *Lightf.* Banks of Huggersfield and Franklinfield Lakes, *Glasg.* *Hopk.* Small hill marshes, *Edinb.* *G. Don.* Fl. July, Aug. $\frac{1}{2}$.

Plant 3—8 inches long, creeping, little branched. Leaves opposite, glaucous, tapering at the base. Flowers small, greenish red. Petals very minute, inserted on the cal., often wanting.

2. DIGYNIA.

15. OXYRIA

1. *O. confertifolia* (Kidney-shaped-leaved Oxyria). *Lightf.* p. 190, and *E. B.* 1. 210. *Rumex alpinus*.

Hab. Alpine parts of Scotland, on moist rocks, abundant. Fl. July, Aug. $\frac{1}{2}$.

Stem 6—12 inches high, with rarely more than 1 leaf, often naked. Radical leaves numerous, all reniform, with an obtuse sinus on the top, on long petioles, with membranaceous stipules at their base. Stems and peduncles branched, with minute, acute, membranous, bristles at the base of each ramification. Petioles increased upwards. Flowers green, small. Stem 3, shorter than the divisions of the obscure perianth. Fruit nearly orbicular, compressed, notched, with 2 spreading fleshy styles. Fruit a nut, inclosed in an aricle, with a remarkably broad-edged border, tipped with the styles in a

rather deep notch, and having at the base the pointed perianths not at all enlarged.

This is remarkably different in leaves from *Rumex*. It is the *Dennis* species of Brown, in the first ed. of *Bent's Passage to the Arctic Regions*, but was previously named *dryas* by DeCand. Wallenberg considers it a *Milium* (see Hultsch) with one third of the parts of fertilisation removed.

3. TRIGYNIA.

10. RUMEX.

* *Flowers all perfect, lower and enlarged valves of the Perianth with a tubercle (groove-former). (Lapathes or Dock)*

+ *Valves entire.*

1. *R. aquatilis* (great Water-dock), valves entire entire bearing small grains, leaves lanceolate acute, the lower ones cordate at the base. *Lichtf.* p. 199. *E. B.* t. 2194.

HAB. Pitches and by river-sides. Banks of the Clyde at old Kilpatrick, Dept. below the Tay, near Perth, Mr. Knott's Ditches near Wickham, Perthshire, Mr. Harvey. *Fl.* July, Aug. 2.

The largest at our Dock, 2—3 feet high. Some lower a foot and a half long. Root large, very spreading.

2. *R. crispus* (curled Dock), valves very large cordate entire articulated bearing grains, leaves lanceolate waved acute. *Lichtf.* p. 188. *E. B.* t. 1553.

HAB. Way-sides and near houses, frequent. *Fl.* June, July. 2.

Two or three feet high. Lower leaves broader, all crisped at the margin. *Stems of flowers* very numerous and crowded. Dishes pointed usually by the large, broadly cordate, reticulated, green, membranous valves, some of which (not all, in my specimens) bear an acute orange-coloured grain, or tubercle.

3. *R. angustatus* (bloody-red Dock), valves oblong (small) entire, one, at least, bearing a grain, leaves lanceolate somewhat heart-shaped. *E. B.* t. 1533.

HAB. Woods and waste places. King's park, Edinb. Mr. P. Kell. Abercrombie woods, Edinb. Along. Borthwell woods, sparingly, High. Duffield, Mr. Arnold and Mr. Gordon. *Fl.* July. 2.

Two or three feet high, much branched. Leaves generally with red veins, sometimes green (Sax). *Flowers* in small dense whorls, base of leaves, except the lower ones.

++ *Valves toothed*

4. *R. crispus* (sharp Dock), valves oblong somewhat toothed all bearing grains, leaves cordate-oblong serrulate, whole leafy. *Lichtf.* p. 187. *E. B.* t. 714.

HAB. Moist deep woods, underhedges and in pastures, frequent. *Lichtf.* *Fl.* July. 2.

Stems small, distant, each subtended by a small leaf; valves subden-

lets, and each grass-like. Are these sufficient marks to distinguish it from *H. angustatus*?

5. *H. pulcher* (Middle Dock), valves oblong toothed one of them principally bearing a grain, radical leaves panduriform, stem scarcely diffuse. *Egghf.* p. 169. *E. B.* i. 1474.

Hab. Wet-sides in dry places, Sibbald. *H.* July. ♀.

Stems very straggling. Flowers small, distant, leafy.

6. *H. obtusifolius* (Broad-leaved Dock), valves ovate toothed one principally bearing a grain, radical leaves ovate-cordate obtuse, stem roughish. *Egghf.* p. 169. *E. B.* i. 1469.

Hab. Wet-sides and waste places, frequent. *H.* July. ♀.

Two to three feet high. Stems rather close, somewhat leafy. Distinctly toothed leaves broad and large radical leaves, which are generally crisped at the margin. Stem scabrous between the elevated lines which form the ribs.

7. *H. maritimus* (Golden Dock), valves deltoid fringed with setaceous tooth-bearing grains, leaves linear-lanceolate, whole much crowded. *E. B.* i. 722.

Hab. Marshes principally near the sea. *H.* July. Aug. ♀.

Well distinguished from every preceding species by its narrow leaves, and singularly setaceous-spicuous, extremely crowded, and bright coloured valves. Lightfoot's *H. maritimus* seems rather to belong to the next species.

8. *H. pulcherr.* (Yellow Marsh Dock), valves lanceolate with short setaceous teeth near the base bearing grains, leaves linear-lanceolate, whole distant. *Egghf.* p. 169 (*H. maritimus*). *E. B.* i. 1468.

Hab. Marshes August-stem, G. Don. *H.* July. ♀.

I fear that future observations will prove this to be but a var. of *H. maritimus*, with more distant whorls of lower leaves, less bright coloured valves, with shorter setaceous teeth.

** *Flowers* *divious*, inner calycal valves of the perianth without any tubercle or grain. (*divious* or *Sorrels*.)

9. *H. Arvens.* (Common Sorrel), leaves oblonga-sagittate their segments bent towards the petiole. *Egghf.* p. 191. *E. B.* i. 132.

Hab. Meadows and pastures, common. *H.* June. ♀.

Over foot to two feet high. Petioles large, purplish, cordate, obtuse, membranous, reticulated with veins, without grains in my specimens.

10. *H. cretaceus* (Sheep's Sorrel), leaves lanceolata-hastate their acute lobes spreading or even recurved. *Egghf.* p. 191. *E. B.* i. 1474.

Hab. Dry pastures, frequent. *H.* May-July. ♀.

Variable in size, which is from 2—10 inches, and in the leaves, the sometimes only the radical ones are of the shape above described, at other times many of the radical ones are so too, the rest are

lanceolate, more or less petiolate, entire. Every part much smaller than in the last species.

17. *TOPILEDIA*.

1. *T. palustris* (Scottish *Aphedon*), spike erect, stem glaucous beneath leaves, petals obscure obtuse, germs oblong 3-lobed, imbricate at the base of the pedicel. *Egghf.* p. 181 (*Asteriscus subcordatus*). *E. B. t.* 536.

Hab. Highland mountains, in rather elevated situations, not uncommon. *St July, Aug. 2.*

Scarcely a span high. Leaves all subuln, 2 inches long, linear, entire, equitant. Flowers small, white.

18. *TRIGLOCH*.

1. *Tr. palustre* (Marsh *Arrow-grass*), fruit three-celled nearly linear. *Egghf.* p. 192. *E. B. t.* 365.

Hab. Wet meadows and by the sides of ditches in marshy situations, plentiful. *St Aug. 2.*

Leaves all petiolate, linear, fleshy, slightly grooved on the upper side, the sheath, membranous at the base. Spike 12—15 inches high, terminating in a few single spike or raceme. Flowers small, greenish, stamens small, within each anther a division of the perianth. Capsules 3, linear, united by a common receptacle so as to form one 3-celled fruit, each separating by the base, and suspended by the extremity, never opening.

2. *Tr. maritimum* (Sea-side *Arrow-grass*), fruit 6-celled erect. *Egghf.* p. 192. *E. B. t.* 365.

Hab. Salt marshes, frequent. Banks of the Clyde, at Kilpatrick and Bowling Bar, *Stoph. H. May—Aug. 2.*

Larger than the last and stouter, differing essentially in the fruit, which is formed of 6 distinct capsules, forming a broadly ovate fruit, and not separating from the base and suspended by the point as in the *T. palustre*. Even in flower the same distinction is observable in the germs as in the fruit.

19. *COLCHICUM*.

1. *C. autumnale* (Marsh *Saffron*), leaves plane broadly lanceolate erect. *Egghf.* p. 162. *E. B. t.* 153.

Hab. Low marshes, but not common. Also, the root of Mr. Keston, *Egghf.* *St Sept, Oct. 2.*

Root solid. Flowers upright in raceme, 2—3 in succession, springing from the bulb, with a very long narrow tube, surrounded at the base with a membranous sheath. Stamens inserted on the divisions of the tube purple persistent. Germen at the base of the tube, as long as the stamens up the whole length of the tube. The leaves appear the following spring, and wither in the summer.

20. *ALISMA*.

1. *A. Plantago* (great *Water Plantain*), leaves ovate erect, fruit depressed, capsules oblong trigonous. *Egghf.* p. 192. *E. B. t.* 367.

Here. Heads of lakes and rivers, frequent. Fl July. 2.
Two to three feet high. Acaes all radial, no long horizontal. Scape
branched upward, branches whorled, hairbrated, compound.
Flowers pale rose colour. Bracts singly, curved, like a horse-
shoe, as in the whole genus.—A var. is mentioned by Mr. Hopkiss
with lanceolate leaves.

2. *A. ramosuloides* (Grass Water Plantain), leaves finger-like-
ovate, fruit globose-squarrose, capsules acute. *Lightf.* p. 133.
R. D. J. 225.

Here. Ditches and bays, but not common. Sides of bays in Ma,
Liffey. Marsh beyond Parist, Gleng. Alport. N. side of Loch La-
ven and bays W of Dunning, Mr. Stewart. Duddingston Loch, and
Castle Loch, at Leith, March. In the Hanging Bog, near
Edinb., Mr. P. Mill. Burnside and, G. Don. Fl Aug. 20.

Much smaller than *heptandra*, with flowers larger, pale coloured, in an-
thesis, which are sometimes prothecium. But the most essential dif-
ference is to be found in the germs or fruits.

VII. HEPTANDRIA.

I. MONOGYNIA.

1. *TRIENTALIS*. Cal. of 7 leaves. Cor. in 7 segments, regular
and flat. Berry dry, of 1 cell, many seeds.

I. MONOGYNIA.

I TRIENTALIS.

1. *T. europæa* (Church-weed Winter-green). *Lightf.* p. 136.
R. D. J. 16.

Here. Sides of mountains and in woods, especially in the Highlands.
On Ben Lomond, about 1 mile of the way up, and Duke of Arrol's
woods at Blair, abundantly. *Lightf.* Church, Mr. Stewart. Black-
burne heights, Salsburgh, Mr. Stewart. Alport, Mr. De Guis-
sane. Clary, Rev. Mr. N. D. Blair. Woods, Dunblair, especially
Dungartree, near Strath, and hill of Collieston, Loch Broom, Ar-
mor; and woods, Dunklaid, Mr. Murray. Sandilands, Portlaur,
Dr. Walker. Fl June 12.

Root creeping. Stems single, 4—6 inches high, with 2 or 3 small di-
stent leaves, and 4—7 terminal, whorled, large, obscure-lanceolate
ones, from the centre of which arise 3—4 slender flower-stalks, about
1 inch long, each terminated by a rather large, white, of first droop-
ing flower. Length of cal very narrow, almost tubular: the seg-
ments of cor. lanceolate. Germ. superior, roundish. Capsule white.
Pericarp fleshy. Seeds few, on a spongy central receptacle.

VIII. OCTANDRIA.

1. MONOGYNIA.

* *Flowers complete (cal. and cor.).*

8. *Acacia*. Cal. 3-lobed, inferior. Pet. 3. Germen 3-lobed. Capsules (Samaras) 3, united at the base, each with a long winged membrane, 1-celled, 1—3-seeded.
1. *Eriogonum*. Cal. 4-partite, superior, deciduous. Pet. 4. Caps. elongated, oblongly 4-sided, 4-celled, 4-valved, many-seeded. Seeds renate.
2. *Valerianella*. Cal. 4-dentate, superior. Cor. of 1 petal, campanulate, 4-lob. Anthers with two pages. Berry globose, 4-celled, many-seeded.
3. *Eriosa*. Cal. of 8 leaves. Cor. of 1 petal, limb 4-lob. Anthers before flowering connected by two lateral pores. Caps. 4-celled, 4-valved, dissepiments from the middle of the valves.
4. *Cassia*. Cal. double, 4-leaved, inner one coloured. Caps. with the dissepiments opposite the margins of the valves, and separating from them.—The rest as in *Draca*.

(Monstrops, Dec. Mon.)

** *Flowers incomplete*

5. *Dacrydium*. Perianth single, resembling a corolla, inferior, 4-lob. Berry 1-seeded.

(Dacrydium)

(Polygama, Oct. Div. Chrysophyllum and Scleranthus, Dec. Div.)

2. TRIGYNIA.

7. *Pentstemon*. Perianth single, 5-partite, resembling a corolla, inferior. Fruit a 1-seeded nut.

3. TETRAGYNIA.

9. *Asclepias*. Cal. half inferior, 2-lobed, Cor. superior, 4—5-lobed. Anth. renate, 1-celled. Berry 4—5-celled.
6. *Panicum*. Cal. of 4 leaves. Pet. 4. Cells of the Anth. four, one on each side the middle of a tubulate filament. Berry 4-celled, 4-seeded.

1. MONOGYNIA.

1. EPILOBIUM

* *Flowers irregular. Stam. long double*

1. *E. angustifolium* (Rosa-ley *Hibiscus-hort.*), leaves scattered linear-lanceolate veined glabrous, flowers irregular subopposite, stem. declined. *Light*, p. 197. *E. B. t.* 1947.

HAB. Among rocks in shady places, not uncommon, especially in the Craggy woods and rocks in the E. of the Kirk of St. John, near Hamilton, Dr. Fenzl. Near Loch Lomond, 30 m. W. of Sterling, by the road from Tyndrum, Dr. Stuart. Hadden's Moss, Farnham hills. In Collingdale and Abercrombie woods, Mearns. Banks of the Clyde at Barochloch, Hepb. Full of Fyvie and woods by Lochness, Mr. Murray, &c. Fl. July. ♀.

Stems 4—5 feet high. Very handsome. Petals blue.

““ Flowers regular. Stem erect. Petals deeply notched.

2. *E. stratum* (great hairy Willow-herb), leaves sessile-lanceolate, serrate-serrate hairy, stem very much branched hairy, root creeping, stigma 4-lobed. *Lighf.* p. 107. *E. B.* t. 838.

HAB. Sides of ditches, stream, and lakes. Near Dullinore, Glasgow, Dr. Brown. Almost Edinb., Kinross-shire, and Perthshire, Mr. Arnott. Fl. July. ♀.

Almost equal in size to the last. Root perennial, creeping. Flowers corymbose, large.

3. *E. parviflorum* (small-flowered hairy Willow-herb), leaves sessile lanceolate slightly toothed serrate on both sides, stem nearly simple very downy, root fibrous, stigma 4-lobed. *E. B.* t. 758.

HAB. Meadows and banks of lakes and rivers, frequent, Hepb. Fl. July. ♀.

The much smaller size of this, in all its parts, scarcely more than 1 or 1½ feet in height, besides the above characters, serves to distinguish it from the preceding, with which it has been confounded.

4. *E. pubesce* (narrow-leaved Marsh Willow-herb), leaves narrow lanceolate sessile sessile, entire and as well as the rounded root stem pubescent, stigma undivided. *Lighf.* p. 109. *E. B.* t. 345.

HAB. Ponds and the sides of lakes. Fl. July. ♀.

Stems about a foot high. Flowers small.

5. *E. tetragynum* (square-stalked Willow-herb), leaves lanceolate sessile glabrous druseolate, stem with 4 angles nearly glabrous, stigma undivided. *Lighf.* p. 108. *E. B.* t. 1949.

HAB. Sides of ditches and watery places, common. Fl. July. ♀.

6. *E. montanum* (broad smooth-leaved Willow-herb), leaves ovate-serrate shortly petiolate glabrous all toothed, stem round pubescent as well as the fruit, stigma 4-lobed. *Lighf.* p. 108. *E. B.* t. 1177.

HAB. Stony places under hedges, &c. Fl. July. ♀.

The leaves in a few high. Much like this is the *E. cernuum*, which has not yet been detected in Scotland, but that has an entire stigma.

7. *E. albidifolium* (Christ-mass-leaved Willow-herb), leaves ovate-serrate rather obtuse sessile glabrous lowermost ones entire the rest very slightly toothed, stem round glabrous as well as the fruit, stigma entire. *E. B.* t. 2021.

Hab. On mossy, probably moist of the Highland mountains, *G* and *F*.
Flora and *Mr J T Mackay*. *Iron* *Norris*, *Mr Mackay*. Side of a
 rivulet on Hain-bell, *Mr Stewart*. *13 July*. *M*.

The above are the marks I had in my numerous specimens from the
 English and Scotch mountains, Shetland, Norway, and Iceland,
 and they appear to be permanent. Nevertheless, however, that the
 gamete is dwarf. A very slight appearance, indeed, of pubescence
 is visible with a glass, which soon is dissipated in the fruit. Root
 much creeping. The habit is altogether different from *E. saxatilis*,
 to which it approaches in character, wanting its rigidity and
 being much smaller, seldom more than 6–8 inches high. Wahlenberg
 considers it a var. of the following, to which I can by no means
 assent.

5. *E. alpinum* (synonym *Wahlenbergii*), leaves elliptical glaucous on
 above, sometimes nearly entire, stem nearly glaucous, and fruit
 entirely so, stigma undivided. *Lichtf.* p. 132. t. 10. *E. B.*
t. 201.

Hab. Wet places on all the Highland mountains. *13 July*. *M*.
 Three to five inches high. Root creeping. Stem upright, with two
 lines of very obscure pubescence, prominent at the base. Flowers
 seldom more than one or two from the axils of the stalk.

2. VACCINIUM

* *Leaves deciduous.*

1. *V. Myrtillus* (Bilberry or *W. horticola*), peduncles 1-flowered,
 leaves entire or subcordate, stem upright. *Lichtf.* p. 300.
E. B. t. 456.

Hab. Woods and bushy places, frequent. *13 May*. *G*.

Small shrub about 1 foot high. Flowers drooping, corolla, very clo-
 gnet, greenish, with a red tinge. Stam. 8 or 10. Anthers tubu-
 lar, with a pore on the top and a tube behind. Berries black, glau-
 cous, very agreeable in the taste.

2. *V. vitigenum* (great Bilberry), peduncles 1-flowered, leaves
 obscurely entire, veins distinct, stem rounded. *Lichtf.*
 p. 301. *E. B. t. 581*.

Hab. Highlands, not rare: in low moist grounds, as well as at the
 summits of the mountains. *13 May*. *G*.

Leaves glaucous, especially beneath, the veins, reddish-veined, smaller
 than the last. Anthers the same. Stam. 8 or 10. Berries very su-
 perior to the last in flavor.

** *Leaves persistent, evergreen.*

3. *V. Pulegium* (red *W. horticola*), racemes terminal droop-
 ing, leaves evergreen obscurely dotted beneath, their margins re-
 volute nearly entire. *Lichtf.* p. 302. *E. B. t. 515*.

Hab. Dry places on heaths, mountains, and in woods. *13 May*. *G*.
 A low, woody but straggling shrub, with leaves disagreeable those of the
 last. Flowers pale blue-colored, campanulate. Berries red, acid,
 but not pleasant — a dorsal variety, very bushy, with leaves much
 crassified, and only half the size of the common plant, but in vigor

flowers fall as large, is found by Mr. Murray on the Campsey hills, near Kilbeg, and on hills in Arvon. This retains its character to the south as, where in England it has been long known under the name of *P. longistylus*.

4. *P. Cypreorum* (Cypressivy), flowers-stalks terminal single-flowered, leaves ovate crenaceous glaucous beneath their margins revolute and entire, cor. 4-partite sessile, stem bifurc. *Lightf.* p. 203. *E. B. & 1013.*

11a. Plant-huge in the Lowlands, frequent, but not so common in the Highlands. *Lightf.* 18 June. 5

Very straggling, wiry, 8 or 10 inches long. Leaves small. Flowers bright rose colour. Cor. deeply divided, segments irregularly revolute, on which descend, as well as the borders anthers, this is by many made a cypress. *Cypreorum*. First very pleasant, making the best of taste, far superior to the foreign *P. maritimum*, which is so largely imported to this country. At Longtown on the borders of Cumberland the fruit of the *P. cypre.* forms no inconsiderable article of trade.

3. ERICA.

1. *E. cinerea* (fine-leaved Heath), anthers with two serrated appendages at the base, style a little exserted, stigma capitate, leaves terete. *Lightf.* p. 204. *E. B. & 1013.*

11a. Heath, described. 11 July, Aug. 5.

Leaves, in rather long wheated masses, drooping, reddish purple. Leaves nearly linear, glaucous. Twigs with white flowers. Used for various medicinal purposes. See *Lightf.* p. 204.

2. *E. Tetralix* (great-leaved Heath), anthers with two awns at the base, style as long as the ovary cor., leaves in four-ranked, flowers capitate. *Lightf.* p. 205. *E. B. & 1014.*

11a. Marshy grounds, very frequent, sometimes with white flowers, *Lightf.* 11 July, Aug. 5.

This is the most beautiful of our two *Heaths*. Flowers large, delicate, rose colour, drooping.

4. CALLUNA.

1. *C. vulgaris* (common Ling). *Hook. Bot. Fl. ed. 2. p. 111. Lightf.* p. 203 and *E. B. & 1013* (Eriose only).

11a. Heath and moor, common, sometimes with white flowers. 11 June—Aug. 5.

A small, much branching, naked shrub. Leaves small, opposite, pubescent, linear, closely imbricated in 3 rows, sometimes very hairy. Flowers small, reddish, drooping, nearly sessile, ovate. Differ in the flowers (and in the capsule (now gone) from *Erica*. Used much for hedges or walls for fuel, and makes an excellent edging to garden-borders instead of box.

5. DAPHNE.

1. *D. Laureola* (Spurge Laurel), numerous solitary or short 5 flowers, leaves lanceolate glaucous crenaceous. *Lightf.* p. 205. *E. B. & 119.*

HAB. Moist woods and hedges, rare. Banks of the river at Basing, Dr. Perrens. Woods, Bitchell, High. Fl. March. 4.

Stems rather stout, 1—2 feet high, but little branched, naked below, leafy above, and hence bearing some resemblance to a Palm. Flowers yellowish green, each accompanied by an ovate concave bractlet, drooping. Petioles subcylindrical, half 4-creft. Stems included in 2 rows of 4 each, sheaths very short. Berry ovate, black/black.

4. ACER.

1. *A. pseudo-Platanus* (*Syrnance*), leaves 3-lobed unequally angled, racemes pendulous subterminal. *Lightf.* p. 638. *E. S.* t. 303.

HAB. Near houses and in gentlemen's plantations frequent, but scarcely indigenous. *Lightf.* Fl. May, June. 4.

A large tree with spreading branches. Flowers greenish. Germen peltate. Fruit with 2 long, membranaceous wings, which greatly aid its dispersion. The wood is used for bowls and trawlers, and other turnery-work, and the Highlanders are said to make a wine of the sap.

2. *A. campestre* (common Maple), lobes of the leaves mostly 3-lobed-ovate, racemes upright subterminal. *Lightf.* p. 644. *E. S.* t. 304.

HAB. Woods, but not very common. Fl. May, June. 4.

A small tree with rough bark full of deep fissures. Leaves small. Wood often beautifully coloured, and then much valued.

3. TRIGYNIA.

7. POLYGONUM.

* Leaves ovate or lanceolate.

† Spikes of flowers terminal, solitary. Not triquetrous (*Boiss.*).

1. *P. Distort* (*Distort* or *Sandweed*), stem simple bearing one spike, leaves ovate waved the radical ones running down like a footstalk. *Lightf.* p. 203. *E. S.* t. 149.

HAB. Moist meadows, but not common. About Inverary. *Lightf.* Moorsy ground at Banchory near Collieston, and banks of the North Esk, below Blavock mill, Mung. Waste ground, Kiltvick, Do. Glen near Castlehill, and banks of the Kelvin at Garbaid, Mung. Below Greenock, Bute and Arran, plentiful. Mr. Hervey. Fl. June. 4.

One or one foot and a half high. Upper leaves with long sheaths. Spike cylindrical, dense. Flowers both coloured, on short footstalks, with small bractlets at the base. Stems 3. Spikes 2. Root large, woody, very reticent.

2. *P. vulgaris* (*polyperum alpinum* *Boiss.*), stem simple bearing one spike, leaves linear-lanceolate the lower ones elliptical peltate their margins revolute. *Lightf.* p. 206. *E. S.* t. 150.

HAB. Hybrid mountain, frequent in dry situations. Fl. June. 4.

From 4 to 8 inches high, slender. Spike linear, lower part of it generally with little virgaceous bulks of a fine red colour. Stem 8 Spikes 3. Perianth pale flesh-coloured, glaucous white.—This species increases much by the bulks, and little if at all by seed, the triquetrous grooves giving elasticity.

†† Flowers spiked, terminal or axillary. Nativitate (Pondus).

3. *P. amphibium* (amphibious *Pericaria*), flowers pentandrous, styles forked, style oblong-ovate, leaves petiolate undulate-lanceolate rough at the margin. *Lightf.* p. 207. *E. B. t.* 428.

a. aquaticum, leaves floating broadly lanceolate glabrous, spikes oblong.

β. terrestre, nearly erect, leaves narrow lanceolate rough with short rigid appressed hairs on both sides, spikes ovate.

Hab. Ponds, lakes, and ditches, or their margins, frequent. Fl. July. Aug. Y.

Stem 1—3 feet long, scarcely branched when growing in the water. Leaves arising from long tubular sheaths or stipules, glabrous in β, but hirsute in α. Spikes nearly solitary, terminal, bright rose colour. The only perennial species of the *Pericaria* family.

4. *P. Pericaria* (spotted *Pericaria*), flowers hexandrous, styles forked, leaves lanceolate (when spotted), spikes oblong erect their peduncle smooth, stipules fringed. *Lightf.* p. 207. *E. B. t.* 424.

Hab. Moist ground and waste places, frequent. Fl. Aug. ☉

Stem erect, branched, 1 foot to 2 feet high. Spikes terminal and lateral, dense, greenish, the tips of the flowers rose-coloured. Leaves nearly smooth, glabrous, but there are said to be ones with hoary leaves.

5. *P. hypophyllum* (pale-flowered *Pericaria*), flowers hexandrous with 2 distinct styles, leaves ovate-lanceolate shortly petiolate, spikes oblong erect their peduncle rough, stipules not fringed. *E. B. t.* 422.

Hab. Fields and dungsills, frequent. Fl. Aug. ☉

One foot to 1 foot and a half high. A very variable species, but the above characters, so ably pointed out by Mr. Curtis, are very constant. Sometimes the stem is spotted, and sometimes the under-side of the leaf is hairy. The flowers are either a pale green, almost white, or of a reddish tint. Spikes dense, terminal and lateral.

6. *P. Hydrophyer* (sliding *Pericaria*), flowers hexandrous, styles forked, leaves lanceolate waved and spotted, spikes less filiform drooping, stem erect. *Lightf.* p. 207. *E. B. t.* 423.

Hab. By the sides of ditches and lakes. Fl. Aug. Sept. ☉

One foot to 2 feet high, erect. Remarkable for its slender, long, more or less drooping spikes of distinct reddish downy, they are lateral and terminal.

7. *P. minus* (small creeping *Pericaria*), flowers hexandrous, style unilobed, leaves linear-lanceolate plant very shortly pe-

Holste, spikes slender erect, stem standing at the base. *E. R.* 4. 1843.

Hab. Mount Sefton near Paria, G. Prov.

Very near *P. Hedyotis*, but much smaller, pan. umbel. below; spikes upright, narrower leaves, and undented stigma.

††† *Flowers solitary.* (Polygamum.)

B. *P. calculare* (Kant. grass), flowers solitary, leaves elliptical-lanceolate rough at the margins, nerves of the spikes distinct, stem prostrate at base. *Lightf.* p. 264. *E. R.* 1. 1832.

Hab. Wag-eke, common. *Fl. May–Sept.* ☉

Varying much in size, and by the whorls, as *Lightfoot* observes, in a large var. with larger leaves that cover near the *P. nodiflorum*, but is not prostrate. The flowers are few, 2–4 or 6 from each cell on a short raceme, green with a reddish tinge. *Stem. R. August 2.*

*** *Leaves verticill.* (Tegopyrum.)

B. *P. Tegopyrum* (Black-wheat), leaves cordate-ovate, stem nearly upright without prickles, angles of the seeds even. *E. R.* 1. 1844.

Hab. Benafalla and about cultivated land; but introduced by cultivation, as in England, it being excellent food for poultry. *R. July, Aug.* ☉

Stem erect, erect, branched 1 foot high, leaves 4. Flowers in spreading panicles terminal and lateral, pale to black.

III. *P. Gonolobus* (shining Black-wheat), leaves cordate-ovate, stem becoming angular, segments of the perianth bluish hooked. *Lightf.* p. 266. *E. R.* 1. 1811.

Hab. Cornfields, frequent. *Fl. July, Aug.* ☉

Very long, slender. Spikes of few whorled greenish flowers, lateral and leafy.

3. TETRAGYNIA.

S. PARS.

I. *P. quadrifida* (Black Paria). *Lightf.* p. 269. *E. R.* 1. 7.

Hab. Near woods. Wood about a mile S. of No. wharf, near Doldale, Dr. P. Jones. Dan of Dathall, 4 miles from Paria, *Lightf.* Herbs a little lower Colburnwood, Dr. Baltha of the Court opposite the mill, Dr. Brown, and banks of the Keltin opposite the second mill, *Edwag, Prop.* Woods, Aberdeen, Mr. Craig. Glen of Linn, N. of Loch Montouch, Dr. Dr. Galtoun Fiddler, Ashfield. Banks of the Sals near Rill, Castle, Dr. P. Jones. Woods of Lynloch, banks of the Dee, sides of Loch Ness, and woods of Dordoun, Mr. Murray. *Fl. May, June.* ☉

Stem creeping. Stems 1 foot high, with 4 (rarely 5) whorled, large, oval, ovate leaves at the summit, the rest naked. Flower single, terminal, on a footstalk about 2 inches long. Cal of 1 linear-lanceolate, green leaflet. Petals five, but narrower and more

colours. *Fls.* purplish. Berry rounded pyriform, but has been used for oil sometimes in the east.

9. *ADHUKA*.

1. *A. manchaliensis* (Tukerian *Manchaliensis*). *Engelm.* p. 309. *E. B.* t. 458.

Hab. Woods and shady places in a light soil, but not common. In the herbarium, *Dr. Pearson*. From the top of Ling-shan-shan, *Provinc. Szechuan, Dr. Stuart*. Frequent about Wang in woods and about the roots of *Isidrys*, *Hopk.* It also of the *Isidrys*, *Chang*, *Dr. Stuart*. 18 Apr. May. 3.

Root creeping, with root-like scales. Stem about a span high. *Leaves* 2 or 3, radical, on very long petioles, alternate, lobed and cut, 2 linear ones small and simply terete. Petioles single, horizontal, with a kind of 4 verticillate green flowers, and a fifth terminal one. Stems united in pairs, or they may be considered as 1- or 2-foliated stem, each manifestly terminated by a single vill of an entire, and all springing from a fleshy ring that surrounds the pith. The flowers have no evident muddy smell in the morning or early in the morning, while the dew is on them; the lateral flowers have muddy their parts of fertilification in hours, the terminal one in days.

IX. ENNEANDRIA

1. HEXAGYNIA.

1. *Hexagynia*. Perianth single, corollate, 6-partite. Caps. 6, many-seeded.

1. HEXAGYNIA.

1. *HUTUMUS*.

1. *H. umbellata* (flowering stick). *Engelm.* p. 211. *E. B.* t. 431.

Hab. Ditches and ponds, but not common. *Engelm.* *Dubbing*—*Loch*, *Dr. J. Macoy*. Loch of China, *Dr. Dr. Dr. Dr.* 18 July. 30.

Root white, tuberous. *Leaves* all radical, 2—3 ft long, linear, alternate, acutely tripartite, more or less equally broad at the extremity. Stems longer than the leaves, rounded. Cluster of many more coloured fls. on petioles about 1 inch long, with several the strong branches at their base, and these having a triple flower manifestly involute to each stem. Stems 3-4, complete with leaf about as long, with a little and rounded stigma. Anthers pedicel or fixed to the inner surface of the procarps, extremely small — 3 highly set several places.

X. DECANDRIA.

1. MONOGYNIA.

* *Flowers polypetalous.*

1. *MONOCERA*. Perianth single, of 4—5 leaves, cartilagine at the base. *Anth.* 1-celled, bilobate. *Caps.* superior, 4—5-celled, 4—6-valved. *Seeds* numerous, furnished with a long arillex.
2. *PRINOA*. *Cal.* 5-lobed. *Petal.* 5. *Anth.* opening with two pores. *Caps.* superior, 5-celled. *Seeds* numerous, furnished with a long arillex.

** *Flowers monopetalous.*

3. *HEMISPERMA*. *Cal.* deeply 5-lobed. *Cor.* ovate. *Anth.* unilobed. *Caps.* superior, 4—5-celled, the partitions formed by the lateral margins of the valves (as in *Platelandron*).
4. *ANOMOMERIS*. *Cal.* deeply 5-lobed. *Cor.* ovate. *Anth.* with 2 axes. *Caps.* superior, 4—5-celled, the partitions from the middle of the lobes.
4. *ANASTROPHIS*. *Cal.* 5-lobed. *Cor.* ovate, its base peltoid. *Berry* superior, 5-celled.

(*Passiflora Nym.* and aff., Oct.)

2. DIGYNIA.

5. *SCORRANTICA*. *Cal.* monopetalous, 5-lobed. *Cor.* 0. *Stem*, inserted upon the cal., 5 frequently abortive or wanting. *Caps.* 1-seeded, covered by the cal.
6. *CARYOCARYSTUM*. *Cal.* 4—5-lobed, somewhat coloured, superior. *Cor.* 0. *Caps.* with two heads, many-seeded.
7. *PARIPARMA*. *Cal.* superior, or inferior, or half inferior, 5-partite. *Cor.* of 5 petals. *Caps.* with 2 heads, 2-celled, many-seeded, opening between the heads.
8. *SEPTOCARYA*. *Cal.* monopetalous, tubular, 5-toothed, destitute of scales at the base. *Pet.* 5-clawed. *Caps.* oblong, 1-celled.
10. *DIANTHUS*. *Cal.* monopetalous, tubular, 5-toothed, with about 4 imbricated opposite scales at its base. *Pet.* 5-clawed. *Caps.* cylindrical, 1-celled.

3. TRIGYNIA.

11. *ANEMONA*. *Cal.* 5-lobed. *Petal.* 5, undivided. *Caps.* 1-celled, many-seeded.
12. *PERNIXIA*. *Cal.* 5-lobed. *Petal.* 5, deeply cleft. *Caps.* 1-celled, opening with 5 teeth, many-seeded.

14. *COROLLARIA*. Cal. of 5 leaves. Pet. 5, extremely minute, notched. Caps. 1-celled, opening with 3 valves, many-seeded. Sm. (3-celled, cells 2-seeded, Decand.).
15. *SAURON*. Cal. monophyllous, tubular, often ventricose, 3-toothed. Pet. 3-clawed, mostly crowned at the mouth, and the limb generally notched or bifid. Caps. 3-celled, 6-toothed, many-seeded.

4. PENTAGYNIA.

16. *COROLLARIA*. Cal. 5-lobed. Cor. monopetalous, tubular, 5-lobed. Caps. 5, with a sessile orifice at their base.
17. *SAURON*. Cal. 4—7-lobed. Pet. 5. Caps. 5, with a sessile orifice at their base.
18. *CRANIS*. Cal. 5-partite. Pet. 5. Caps. angular, 5-celled, cells 2- or many-seeded. Seeds with an elastic arilhus.
19. *LYRATA*. Cal. monophyllous, tubular, 3-toothed. Pet. 3, clawed, crowned at the mouth, their limb divided. Caps. opening with 3 or more teeth, 1- or 3-celled.
20. *ACANTHOSA*. Cal. monophyllous, tubular, caducous, 5-lobed. Pet. 5 (clawed), their limb undivided. Caps. opening with 5 teeth, 1-celled.
21. *CANADICA*. Cal. 5-lobed. Pet. 5, cloven. Caps. bursting at the top with 10 teeth (5 in Cor. apart.).
22. *SCORPULA*. Cal. 5-lobed. Pet. 5, undivided. Caps. ovate, 3-celled, 5-lobed.

(Silene lyfata, Ord. Tunc.)

1. MONOGYNIA.

1. MONOTROPA.

1. *M. Hyemale* (yellow Bird's Nest), lateral flowers with eight, terminal one with 10 stamens. *Egghf.* p. 214. *E. B.* c. 69. Has. Beach- and Ir-woods, where the ground is dry, but not common. *Egghf.* Fl. July. ♀

Root fibrous, perennal. Stem stout, erect, 6—9 inches high, simple or slightly branched, instead of leaves having numerous small scurfed scales of the same dingy yellow colour as the stem. Racemes terminal, a continuation of the stem, at first drooping, then erect. Flowers on short stalks or bracted peduncles, large, of the same colour as the rest of the plant. Stam. alternately smaller. Ovary, 4—6-lobed, ovate. Stigma large, peltate. Seeds very minute, rarely perfected, enveloped in a reticulated arilhus.

2. ANDROMEDA.

1. *A. polifolia* (Marsh Andromeda), leaves alternate lanceolate their margins scabrous glaucous beneath, flowers on short racemes terminal. *Egghf.* p. 214. *E. B.* c. 713. Has. First Bay in the Lowlands, not infrequent, abundant on the Solway Moss, *Egghf.* Kirkcubbin Moss, Mr. Arnot's Mountain.

- Mosses, For Dr. Condon. Foothills Moss, springs, and Blue
- Drowned Moss, plentifully. Dr. Murray. Pt. May and Sept.

A small river runs along, with beautiful overhanging rock-coloured
abundant there is good deal covered among the terminal branches.

Verilags

- E. M. serratus** (North America), lower scattered numerous linear teeth col. lower stalks terminal aggregate simple, few on leaf's dorsum. — E. B. 4: 315B.

Man. For this mine and growing plant Smith gives "Antimony in Szechwan, and in the eastern side of Shensi," but no locality is given. My friend Mr. Szechwan attributes this discovery to Messrs. Devere, two men-servants of French, but he adds that he is not able to obtain its precise location. Cf. Jones, *ibid.*, p. 1.

A very old plant. Stems branched, woody and naked below. Peduncles 2 inches long, slender, reddish. Flowers large, beautiful, purplish blue. One specimen. (The Irish *St. Andrew* belongs to this genus, - tall low herb 8 lines), but our Scotch plant having 18 stem, its close affinity with *Androsace* induces me to place the name here.

1. Introduction

1. *A. alpinus* (Humboldt) *et alius* *abundans*, stem prostratum, lamiis minus erectis. *Flück.* n. 213, c. 11. *Fl. B.* 4: 5949.

Here. On many of the dry barren hills and mountains, especially to the S. of Little Rock River in Howe's Cove, and between Little Rock River and Little Rock, upon Howe's Cove, in Blue, Ledge. On Howe's Cove and hills in Cochrane, Howe's Cove, The Mother, Hill of Blue, Oliver, and most abundant on the moors about Cape March in Saskatchewan. Brown and black. E. Mex. 5.

A trailing, slender, 4-ft climber on recent leaves which taper down into a 2-in. footstalk, red become in autumn of a fine red colour. Three or a few leaves on the petioles and trifoliate leathery at the base of the leafy-stalks. Flowers unisexual, very pale rose colour, almost white. Fruits black.

2. A. Van Der (Roo-berrie), stam president, kares melle (program). Lickf. p. 713. E. R. i. 714.

[illegible]

Here Abundant on dry, sandy, rocky places in the Highlands, and Western Isles. *R. Sup.* 3.
Stems very long and trailing, leaves alternate, stiff, rigid, smooth, their margins revolute. Flowers in a small distended raceme, terminal, beautiful rose colour. Berry small, red, mature, fleshy, but affording an excellent food for the minor game.

3. *PURRA*

* *Stalk with a single flower*

1. *P. asplene* (single flowered *Hibernica* group), stalk bearing a solitary flower, leaves subcircular. *R. B. t.* 115.

Hab. Fir-wood, near Doonin House, by Farnes, Mr. Arncliffe and Mr. Wp. *R. July* 2.

I had once the pleasure of gathering this truly rare plant in company with his discoverer the Lord of Strath. In hibernica it is so abundant as to perfume the woods with its delightful smell. The stem is scarcely an inch high, with a few rather small and obscurely serrated petioled leaves. Petiole 2 inches long, with 1 linear-flower large, nearly white. Style short, straight. Stigma large, rayed.

** *Flowers numerous, several*

2. *P. secunda* (several flowered *Hibernica* group), flowers all bearing one way, leaves quite serrated. *Lightf.* p. 213. *R. B. t.* 117.

Hab. Shady birch-woods among moss about Little Loch Doon and Loch Muir, Ross-shire, and in the birch-woods of Trossach, Collingdale and Collingdale, about Loch Rannoch, Perthshire. *Lightf.* Gordon Castle woods, Mr. Brown. Collingdale woods, near Inverness, Mr. Murray. Birkenhead, Mr. Arncliffe and Apple House in Upper Loch, Dr. Miller. *R. July* 2.

Stems rather strongly 6, branched. Plants 1-2 inches high, with several oval spikes or leaves. Flowers white. Style long, straight. Stigma large.

*** *Flowers numerous, pointing in various directions*

3. *P. rotundifolia* (from 4-angled *Hibernica* group), leaves alternate-subulate slightly revolute, style bent 4-ways much longer than the spreading ovary. *Lightf.* p. 213. *R. B. t.* 113.

Hab. Dry woods and sometimes upon heaths, not uncommon. Woods at Auchinbreck and on the banks of the Clyde about the Falls, woods at Blair Athol, and heaths about Dunkeld. *Lightf.* Perthshire, Mr. Brown. Callender, Mr. Brown. Callender woods near Inverness, Mr. Murray. Rare in the Lowlands, *R. B. t.* *R. July*, Sept. 2.

The largest of the species, with white spreading flowers, well distinguished by the direction and relative length of the stem and style. The latter is more than twice as long as the fully formed ovary and slightly curved downwards at the base, spreads again towards the extremity. Stigma with 3 erect points.

4. *P. media* (intermediate *Hibernica* group), leaves ovate-ovate

recurved, stam. erect much shorter than the straight or slightly decurved style, stigma with 3 erect points. *E. B. t.* 1945.

HAB. Woods near Farnes, belonging to the Earl of Moray. *Fl.* July, Aug. 2.

Style protruded beyond the corolla.

3. *P. minor* (infer *P. inter-groen*), leaves ovate-rotundate ovate, stam. erect as long as the very short straight style, stigma large with 3 divergent rays. *Lichtf.* p. 213? *E. B. t.* 188 (leaf), and 1243 (*P. rosea*).

HAB. Woods at the Falls of Clyde, and woods at Brodie-house, by Farnes, *Hebr.* *Fl.* July. 2.

It is not that I failed, through the last species of *Pyrola* at all confined to the volumes given, that I confine myself to them, but because the two species have been so generally misunderstood and confounded, in consequence of imperfect descriptions and figures, that I fear we cannot put the strictest reliance on the stations that have been given. This is the smaller of the two, and essentially distinguished by the shortness of the style, and a large notched stigma, quite included within the corolla corolla. The plant under the name of *P. minor* in *E. B.* is a very bad figure, with spreading leaves and acute petals. That of *P. rosea* is a good figure of the true minor. Flowers in both a pale rose-colour.

2. DICYNIA.

6 CHRYSOMPLENUM

1. *C. alternifolium* (alternate-leaved golden Saxifrage), leaves alternate, lower ones subsessile upon very long horizontal. *Lichtf.* p. 219. *E. B. t.* 14.

HAB. Boggy places among rocks and springs, not uncommon,—as Ben-Lyn woods, and by the side of Kilman Burn, Edinb., Moray, St. Bernard's well, Edinb., Mr. Stewart, Glen-Castell and Ben-Lyn Burn, near the Clyde iron-works, Glasg., *High.* *Fl.* March, April 2.

Four to five inches high, branched near the summit. Leaves petiolate, corolla. Flowers in small umbels, deep yellow, mostly with 8 stam.

2. *C. oppositifolium* (common golden Saxifrage), leaves opposite cordato-rotundate. *Lichtf.* p. 220. *E. B. t.* 150.

HAB. Sides of rivulets in shady places, common. *Fl.* May. 2.

Generally more branched in the leaf than the last, paler colour in all its parts. Stem usually 3.

7. SAXIFRAGA.

* Leaves all radical, undivided.

1. *S. stellaris* (starry Saxifrage), leaves oblongo-runciform angulato-crenate, scape branched, petals oblong acute, capsule superior. *Lichtf.* p. 220. *E. B. t.* 167.

HAB. Sides of rivulets, and wet rocks in alpine and subalpine situa-

toen, common. Campden Hills and Durdarston moor, *High*. Goat-fell in Amana, *Mr Murray*. Fl June, July. **X**.

Slightly hairy. Scape 2—4 inches high, with a sessile lanxet at each ramification of the small panicle. Fl. white, 2 yellow spots at the base of each petal. Cal. reflexed.

2. *S. macula* (clustered alpine Saxifrage), leaves obovate sub-petiolate strictly connate, scape (rarely branched) terminated by a dense cluster of flowers, capsule half inferior. *Lightf.* *Sax.* p. 221, t. 12. *F. B. t. 643*.

Has. Summit of the Highland mountains, but not common. E. side of Cragsburgh in Hordalehouse, *Dr Stewart*. Ben Lomond, *South*, *Mr Murray*. Ben Lawers, *Maugh*, *Black*. Fl Aug. **X**.

A stouter plant than the last, but about the same height. Leaves sub-cylindrical, glaucous above. Scape glandular-pubescent, sometimes a little branched. Flowers clustered. Cal. teeth deeply erect. Petals externally reddish.

3. *S. aurifera* (London Pride), leaves obovate petiolate sub-tuse with cartilaginous scaberyrenate margins, scape pedicel, capsule sessile. *F. B. t. 643*.

Has. Woods Bodwell, and on the banks of the Cuck, at Cartside, Glasgow. *High*. Crosscraigh hill, *Edinb.*, *Maugh*. Auchinclossy woods, *Mr Macgregor* and *Mr Kennedy*. Fl June, July. **X**.

Leaves large, glaucous. Scape 5—10 inches high, slender, a good deal branched, pubescent upwards. Flowers small, pale rose colour, with purple spots. Cal. reflexed.

*** *Sax. leafy*. Leaves undivided.

4. *S. oppositifolia* (purple Mountain Saxifrage), leaves ovate opposite imbricated clustered, flowers solitary terminal. *Lightf.* p. 222. *F. B. t. 3*.

Has. Frequent on rocky places in the Highland mountains. Ben Lawers, Ben Lomond, &c. Fl May. **X**.

Plant in small dense tufts. Flowers large, beautiful purplish red. Capsule half inferior.

5. *S. cincta* (yellow Mountain Saxifrage), lower leaves numerous crowded, the rest scattered linear-lanceolate subulate, stem ascending. *Lightf.* p. 222 (*S. autumnalis*). *F. B. t. 38*.

Has. Abundant in alpine ridges and springy places. Fl July, Sept. **X**. Five to seven inches high, branching below. Flowers pedicel, sub-cylindrical, bright yellow; each petal beautifully spotted with orange. Caps. half inferior.

*** *Sax. leafy*. Leaves narrowly divided (especially the radical ones).

6. *S. granulata* (white Saxifrage), radical leaves confluent on long horizontal obtusely lobed those of the upper part of the stem usually smaller narrowly lobed, stem pedicel, root granulose. *Lightf.* p. 224. *F. B. t. 500*.

Has. Dry banks. Salisbury College and King's Park, *Edinb.* Banks of the Clyde, near Lanark. *Lightf.* Frequent near Glasgow, especially by the Clyde, towards Bodwell, *High*. Fl. June. **X**.

Root consisting of numerous, small, clustered tubers. Stems 8—12 inches high, glandular-pubescent. Leaves mostly radical, glaucous, petioles glandular. Flowers large, white. Siliques and saps half inferior.

7. *S. cernuus* (drooping Italian Saxifrage), radical leaves semi-form on long decumbent palmate-lobed siliques more nearly sessile subtrifid, stems simple bulbiferous with one terminal flower. *E. R. t.* 464.

HAB. Discovered by Mr. TOWNSON on rocks on the summit of Ben Lomond, 1793. I am not aware that it has been described anywhere else, but upon Craigallnach by Mr. BERRY and BLACK. Fl. July, Aug. &.

From 3—4 or 5 inches, slender. Leaves glaucous, and the stem, which decays at the extremity, nearly so. In the axils of the small upper leaves, instead of flowers are clusters of minute reddish balls. Flowers white, rather large. Petals entire. In the English Bot. figure the radical leaves are much less deeply lobed than in my specimens.

8. *S. pendulus* (upright Scotch Saxifrage), leaves upon very long decumbent palmate floral ones obscure, stems weak of about 2½ flowers. *E. R. t.* 2273.

HAB. Discovered in 1793 by Mr. TOWNSON near the summit of Ben Nevis, on the E. side of the mountain. It grows near the lake, on the ascent to B. Nevis, and on Ben Lomond, Mr. TURNER and BLACK Loch Rannoch, Mr. ROBERTSON Fl. Aug. Sept. 2.

9. *S. triphyllum* (Round-leaved Saxifrage), radical leaves spatulate entire and sessile, with upper siliques ones untrifid, stems panicled, petals entire a little longer than the cal. *Lapide. p.* 224. *E. R. t.* 101.

HAB. Rocks and walls, but rare, Aikmair. Top of a wall near Craigallnach, G. BERRY. Links a little to the E. of Cookstown, walls near Kirkcubry, and links opposite Coonamary, Aikmair. Fl. May, June ☉

Two to four inches high. Whole plant covered with viscid hairs. Caps. almost entirely inferior.

10. *S. muscoides* (Moss-like Saxifrage), radical leaves aggregate lower obscure entire and trifid, stems strictly unken! few-flowered, petals oblong obscure (half caliciform) a little longer than the cal. *Greenl. Sax. t.* 11. *f.* 2. and a. 11. & *f.* 1. *E. Bot. t.* 2314 (*S. muscoides*).

HAB. "Cultivated in the Bot. Garden, Cambridge, from seeds received from the Highlands of Scotland." See in *E. B.* Fl. June, July. &.

Leaves & nearly trifid about the roots. Stems 2—3 inches high, with 2 or 3 small, simple or trifid leaves upon it, glaucous below, viscid with glandular hairs above, and on the cal. Caps. inferior. I remark that I am not able to offer more sufficient authority for introducing this into a Scottish Flora. It seems to be rather a plant of the south of Europe. It is not a Linnæan species, nor is the *S. americana*, for which I think Scotch has mistaken this. MASON and WILSON, who are the original authorities for the *muscoides*, describe it as having the "leaves and whole stem hairy and viscid." It is

take the place of *S. oppositifolia*, but in other respects the two very similar. The *E. S. oppositifolia* represents that state of that variable plant which has all the leaves undivided.

11. *S. oppositifolia* (opposed leaf-fringe), radical leaves 3—5-lobed those of the long sterile shoots (mostly) lance-lanceolate acute all nearly glabrous, flowering stem pinnated. *Lightf.* p. 224. *E. B. t.* 454.

β. petals larger with the superior leaves (only) on the procumbent shoots undivided. *S. platyphala*, *E. B. t.* 2176 (and *D. Don, MSS. ined. f.*—This has all the leaves of the shoots trifid, and I do not see how it differs from some var. of *S. hirta*.)

- 12a. Highland mountains, very common, *Lightf.*, *D. Don.* *β.* Clive mountains, *G. Don.* *β.* Map, June 3.

Plants growing in crowded tufts, and throwing out long slender shoots, which have distinct and mostly entire leaves, with sheaths or bracts of young leaves at the articulation, and frequently in the axils of the leaves themselves. The leaves nearest the root are 3- or 4-lobed, varying much in size and breadth, glabrous or pubescent about their bases. All the points are acute, in the upper ones frequently terminated by a short bristle. Flowering stem 3—5 inches long, branched and pinnated, glabrous, a little viscid above: its leaves few, trifid below, the rest undivided. Flowers 6—10, rather large, especially in *β.* Petals glabrous, 3 or 4 times as long as the cal., often coloured. Cal. with acute segments, slightly ciliated. Grasses almost wholly inferior.—An extremely variable plant, and many of the varieties I possess border to closely upon the following species, that I cannot help expressing it as my opinion, that future observations upon individuals in their native soil, aided by others in a state of cultivation, will prove them to be one and the same species.

12. *S. crispatus* (jagged leaf-fringe), radical leaves 3- or mostly 4-lobed those of the sterile shoots mostly 3-, rarely and only below, 4-lobed all acute at least hairy, flowering stem subpinnately pinnated. *Linn. Sp. Pl.* p. 573. *Guss. Nov. t.* 7. f. 3, 4. *S. hirta*, *E. B. t.* 2191. *D. Don, MSS. ined.* *S. Sternbergii*, *Sternb. Berol. Soc.* p. 26. t. 24 (cult. plant). *S. pubescens*, *Steud.*, *Deutsch. Fl.* no. 27.

β. shoots long, leaves dark green ciliated only at the base. *E. late-streus*, *D. Don, MSS. ined.*

- γ.* shoots rather short, leaves ciliated only, especially near the base, 1—3 flowers upon the stem. *S. elongata*, *E. B. t.* 2277. *D. Don, MSS. ined.*

- δ.* shoots very short, leaves dense ciliated only at the base, flowering stem short 1—2-flowered. *S. densata*, *D. Don, MSS. ined.* and *S. condensata* ? cf. *and.* (according to his desc.). The same as this var., only more hairy, is the *S. crispatus*, *E. B. t.* 794, and the *S. grandifolia* *Linn.* and *Guss. Nov.* t. 7. f. 1.

Has Black in the western Highlands, G. Don. 5 Scotch Alps, G. and D. Don. 9. Barbs of a single set like from Ashy Castle, Angus-shire, G. Don. 1. Highest mountains of Angus-shire, G. Don. 18 June, July. 10.

Variations without end might be produced of this plant, which, as I have already intimated, I can find to differ in no essential point from the last species, if it be not in the always 3- or 5-fid leaves, and perhaps the somewhat greater length of their segments. Nothing is more variable than the pubescence on the stems and leaves, and the extent of the sterile shoots. The flowers, too, upon each stem vary in number, and the petals somewhat in shape. The leaves are, in all, more or less acute in the lower ones, and apically tipped with a short bristle in the upper ones, as in *S. hypoxantha*. In none of these marks, therefore, can I see any thing to found specific characters upon, as Smith and Don have done. I am not even satisfied that the *S. pubescens* of E. B. is distinct. It is certainly the description of Ehrh. and Sternberg, and an impartial examination of the beautiful figure by the last mentioned author (Tab. t. 23), with the equally good one of his *S. Sternbergii* (near line), t. 24, will, I think, satisfy anyone that they also are but slight varieties of the same plant. The former is the more hairy of the two.

13. *S. polytricha* (gratified Sternberg), lower leaves and those of the entire short sterile shoots upon very long foot-stalks, divided into 3 deep lance lanceolate acute spreading segments, the lateral ones bifid, the apical leaves of the much branched branching stems linear undivided. E. B. t. 2276. D. Don, MSS. mod. *S. polytricha*, Don. in Affen. Nat. and Don's Hort. Cant.

Has: Rocks near the head of Clava, G. Don. It is stated also to be found in the Highlands by Mr. J. Mackay, but without any particular station being given to E. B. 12 May, June 11.

A very distinct species from any British one, but does it appear to be noticed in Sternberg's fine work, though coming near to his *S. in-*

* Since the above remarks were written upon this most interesting family of the Saxifragaceæ, it was with much satisfaction that I saw, in the valuable *Revue* in Paris, *Cypripedium*, that Mr. James Smith, with that degree of candour which so often accompanies his writings, acknowledged that he considered *S. hibernica* to be only a race of the *Ulex* *Ulex*. A comparison with Linnaeus's description, and especially with the admirable descriptions and figures of Gaumer in his *Fl. Norvegica*, will, I think, make it clearly appear that they are the very same. The figure of *S. hibernica* in E. B. is however a dwarf and hardly here of var. the same as D. Don's *construenda*, only more pubescent, and precisely the *S. gracilissima* of Linn. and Gaumer. Kier. t. 7. f. 1. under which variety, as Smith has himself considered the *gracilissima* to be, he should have quoted the E. B. *construenda*.

I must do for Don's third the further notice to state, that in the same work, by mistake of his printers (E. B. t. 434), the description of Ehrh. for truly distinct from *construenda*. His *S. polytricha* he says is distinct from the latter, unless it be a variety of *hypoxantha*. Of *S. elongata* he tells us that the greatest peculiarity is in its solitary 1-flowered peduncles. But some of my specimens from the above-mentioned Don, have 2 and even 3 flowers upon the same stalk.

densiflora and *S. protuberantifolia*. Whole plant rigid. Stems reddish, glabrous. Leaves slightly pubescent and invol. Petiole much branched, pubescent. Flowers rather small. Petals linear-obovate, those within as the old teeth. Germen salient, oblongo-ovate, and the teeth of the calyx are longer than in any of the division. In *E. Dec.* the James fourth gives Eubank the merit of distinguishing this species from the *S. pyramidalis* of Linn., but afterwards, in Boer's Cyrtopodia, he inclines to think it a var. of that plant with more divided leaves. This may be the case, but without seeing intermediate states it would hardly be suspected. For each division of the leaves of the grass is broadly wedge-shaped, and of a much thinner texture. The pinnule, however, the leaves, calyx, and germen, are proceeds of the same structure. I should have thought it the same with the *S. latifolia* of La Peyrouse, but that that is described as being covered with little points from which an odorous gum exudes. *S. protuberantifolia* has the segments of the leaves extremely narrow indeed and distant. Another species very closely allied to our plant is the *S. revolutifolia* of Mart. Rev. and Bot. Mag. t. 1624, of which I possess specimens through the liberality of Mr. John Bennett. It is distinguished by a still more rigid habit, by the divisions of the lobes being bent back like a scible, and by the calyx being covered with a resinous but not clammy substance, and in a native of Spain, as *geranioides*, *induriflora*, and *protuberantifolia* are of the Pyrenees. May they not all be mere *S. pyramidalis*?

S. SCLERANTHUS

1. *S. strictus* (perennial Kunth), "rad. of the fruit spreading acute, vixim perennat" (Sw.). *Euphyt.* p. 225. *E. B.* t. 451. Hb. Carn.-Balk. frequent. Fl. July. ☉.

Stems many, much branched as a *Schistocoma* mutans, slender, sub-pubescent, straggling. Leaves linear subulate, hooked, membranous at the base. Flowers green, monogamous, in solitary leafy clusters. Cal. succulate, ribbed, with ovate lanceolate teeth, white and membranous at the edge, spreading when in flower, and erect when in fruit. It will be thus seen that the above specific char. taken from Smith, does not accord with my specimens, the troubled cal. of which is exactly as represented in *E. B.* t. 361, left hand fig.

2. *S. perennis* (perennial Kunth), "rad. of the fruit closed obtuse, vixim procurrent" (Sw.). *Euphyt.* p. 1124 f. (*S. poly-racem.*). *E. B.* t. 322.

Hb. Sandy and gravelly places. Boonshale, near Langholm, in E.-h-dale. *Euphyt.* Greville, banks near Foulie, near, D. Dec. 1841, Nov. 2. (Sw.)

In my specimens of this plant the root is stouter than the last, and may be perennal; the stems are shorter, more procurrent, the leaves closer; the flowers denser. But there is no difference in the cal. or fruit, or in any other part of the plant. Surely they cannot be distinct. I should say that *S. perennis* used all its characters in flowering late in the season, or having, under favourable circumstances, survived a winter.

9. SAPONARIA.

1. *S. officinalis* (Sagewort), leaves ovate-lanceolate, calyxes cylindrical glabrous. *E. B.* 4. 1060.

Hab. Road-side. Between Duns and Raveston, near Bowden chapel, banks of the Forth, above Cupbury, and side of the Mill-Leith, opposite the old bridge at Musselburgh, Mearns. Clack. marsh, Angus-shire, *Mr. Forrest*. *H.* July, Aug. 2.

One to one foot and a half high, with rather a stout cylindrical stem. Leaves ribbed, opposite and connate. Petals of numerous large rose-coloured flowers. Last of the row obcordate.—Stakes a little with water, whence the name of *Sagewort*.

10. DIANTHUS.

* *Flowers clustered.*

1. *D. Armeria* (Dep-ford Pink), flowers clustered fasciated, calyxes scales lanceolate downy as long as the tube. *E. B.* 4. 317.

Hab. In fields near the seat of Charles Grey, Esq. of Camo, Angus-shire, but sparingly, *G. Don*. *H.* July, Aug. 3.

One or one foot and a half high, branched upwards. Leaves linear, opposite and connate, slightly pubescent, upper ones acute. Last of the petals rose colour, with white (not red as mentioned in *E. B.*) dots, connate at the margin.

** *Flowers solitary, rising on the same stem.*

2. *D. deltoideus* (Noddy Pink), flowers solitary, calyxes scales mostly 2 lanceolate acute, petals notched. *Lightf.* p. 225. *E. B.* 4. 61.

β. and under 4, flowers white. *D. glaucus*, *Lightf.* p. 225.

Hab. Kings Park, Edinburgh, *Lightf.* both *α* and *β*. Blackford and Prestonfield hills, Mearns. N. bank of the Loch of Forvie, and other spots in Angus-shire, *G. Don*. Rocks near Newburgh, Fife-shire, *D. Don*. Sandy-know Crags, *Mr. Forrest*. *H.* July 2.

A small plant from 6—9 inches high, glaucous. Leaves linear-lanceolate, slightly hairy. Flowers in a rose colour, with a deeper circle in the middle.

3. TRIGYNIA.

11. SILENE.

* *Calyx glabrous.*

1. *S. inflata* (Bladder Campel), flowers panicled, cal. inflated glabrous reticulated with veins, leaves ovate.

α. larger, stems erect many-flowered, petals scarcely crossed. *S. infl.*, *Sm. Comp.* *Cerastium infl.*, *Lightf.* p. 224. *E. B.* 4. 464.

* Near the *Bladderwort*, of which I presume are given in the vicinity of Edinburgh by my friend Mr. Mearns in the *Miner's Press*, can only be considered the extent of garden, and not of naturally general occurrence. To be introduced into a Scottish Flora. The *D. armeria* of *Lightf.* p. 225. that *armeria armeria* is only the *D. deltoideus*.

1. *S. smaller*, stems procumbent low-flowered, petals covered-Silver stream, *Lightf.* p. 217. *S. maritima*, *E. B. & 1847*.
 H. H. Pastures and road-sides, common. β Common on the coast among small loose stones. *H. June—Aug.* γ .

Whole plant glaucous, varying much from situation. Mr. Hooker mentions a var. with narrower leaves, and every where thickly covered with glandular hairs, as found on the banks of the Clyde at Old Kilpatrick, and at the ferry, Clyde Iron-works. I most willingly join with Wahlenberg in uniting the *S. maritima* with the *maritima*. The *S.* is occasionally found at a great elevation on the mountains; and then is the *S. alpina* of Hieron. In both, the flowers are large and white, more or less bell-shaped in each petal. The styles are very variable in number.

2. *S. arvensis* (Haw. Compositae), upright, leaves flatter situated at the base, pedicels solitary single flowered, petals slightly notched crenate. *Lightf.* p. 217. α . β . *E. B. & 1847*.

H. H. Abundant upon all the elevated mountains. *H. June, July, & Aug.* Stems short, 1 or 2 inches high, much branched and leafy. Leaves pinnate. Flowers tubular purple—One of the greatest ornaments of the Alps. Mr. Murray finds it with a white flower on Ben Lomond.

α Calyx pubescent

3. *S. vulgaris* (Nuttallian Catch-fly), flowers parallel around common, petals deeply lobed their segments linear, leaves (of the stem) imbricate pubescent. *E. B. & 1847*.

H. H. Hills at N. Queensberry, Mr. Brown. Rocks between Minster and Ahermole, *G. Dec.* *H. July.* β .

Stems 1 or 1½ ft. high. Radical leaves chorate, acute, tapering into a long stalk. Flowers white, rather large, crenate.

4. *S. montana* (Night-flowering Catch-fly), cal. with 10 angles curved, teeth nearly as long as the tube, stem dichotomous, pinkish bell. *E. B. & 1847*.

H. H. Corn-fields, on the coast of Angus-shire, *G. Dec.* *H. July.* α . One foot or more high. Leaves much like the last, pubescent. Upper part of the stem frequently dichotomous, each branchlet terminated with a single flower, and a solitary flower in the axil of the leaf. Flowers smaller than the last, sweet-scented, pale reddish, almost white. Pedicels erect.

12 STELLARIA.

1. *S. Nivorum* (Wood Starflower), leaves pedicels crenate upper concave smooth, pedicels dichotomous. *Lightf.* p. 223. *E. B. & 1847*.

H. H. Woods and shady places; frequent in the Lowlands. *Lightf.* on banks of the N. and S. Esk, *Stagh.* Woods at Cardenden, Woodhall, and Hamilton, *Hook.* *H. May, June.* γ .

One or one foot and a half tall. Stems weak, pubescent above. Leaves very large, glaucous but rough with extremely minute elevated dots, sometimes divided at the margin. Cal. linear erect, white at the margin. Petals narrow, deeply lobed, pure white.

2. *S. media* (Common Chickweed), leaves ovate, stems prostrat-

dent with an alternate line of holes on one side, petals bipartite, stem 3—10. *Lichtf.* p. 112 (*Alnus media*). *E. B.* t. 137.
HAB. Root-sides and waste places, abundant. *R.* almost the whole year.

Stems weak, with alternate lines of hairs between each pair of leaves, which are admirably distinguish the species. *Leaves* on leaf-stalks, except the uppermost, smooth. *Flowers* small, white, on solitary, axillary and terminal stalks—it is a good perfume, and small birds are very fond of the seed.

3. *S. lobatus* (greater *Sitchaueri*), stem nearly erect, leaves lanceolate much acuminate finely serrulate, petals inversely heart-shaped half twice as long as the narrowest cal. *Lichtf.* p. 129. *E. B.* t. 511.

HAB. Woods and hedges, common. *R.* May. γ .

Plant 1 or 1½ foot high, rather rigid and brittle, somewhat glaucous. *Flowers* large, and with much broader petals than the two following, pure white. *Panicle* of few flowers, leafy.

4. *S. graminea* (lesser *Sitchaueri*), stem nearly erect, leaves lanceolate entire entire, panicle much branched, petals very deeply cleft, segments linear scarcely longer than the three-nerved leaves of the cal. *Lichtf.* p. 128. *E. B.* t. 803.

HAB. Dry pastures, fields and hedges, common. *R.* May. γ .
One foot high, more slender than the last, and readily distinguishable by its much smaller flowers, large and branching panicle, three-nerved cal, and entire leaves, which are moreover by an intense so much acuminate.

5. *S. glauca* (glaucous *Murch Sitchaueri*), stems nearly erect, leaves heart lanceolate entire glaucous, flowers upon long solitary and long footstalks, petals very deeply cleft their segments linear much longer than the 3-nerved cal. *E. B.* t. 803.

HAB. Wet marshy places. Larches and Drillington Lark, Edinb. *Strong*. Much between Dalkeith and Tullerose, and long beyond Pouch, Glasg., *Wick*. *R.* June, July. γ .

Equally slender with the last, 1 foot high. *Flowers* very in size to *S. lobatus*. Readily leaves from that and glaucous by its narrower glaucous leaves, solitary axillary flowers, and the narrower cal, leaves, which, like the last, are 3-nerved.

6. *S. uliginosa* (bog *Sitchaueri*), stem decumbent ovate-lanceolate entire with a callosus tip, flowers in dichotomous panicles, petals bipartite shorter than the cal. *Lichtf.* p. 129 (*S. graminea* β). *E. B.* t. 1074.

HAB. In ditches and shrubs, frequent. *R.* June. γ .

It is strange that this should have been confounded with *S. graminea*. Its much smaller size and minute petals, besides the shape of the leaves, will at all times serve to distinguish this common species.

7. *S. coronatoides* (ajacis *Sitchaueri*), stems decumbent with an alternate hairy line, leaves oblongo-spathulate, peduncles 2 or 3-nerved terminal as well as the cal., which is twice as long as the half cor. glanduloso-pilose.

a. leaves hairy. S. crassifolia Linn. and Guss. Fl. Norw., *Crassum viride*, G. Don, 1852.

β. leaves glabrous. S. crassifolia, E. B. t. 341. Wolf. Lapp. p. 126.

HAB. Don Neria, Mr. Dalton. Mountains N. of Invercadd, Mr. J. Mackay. Ben-a-hair and other mountains of Aberdeenshire, D. Don. Mountains above Killyn, Mr. Brown. Both vars. are found together. Fl. July, Aug. ♀.

Four to six inches long. Lower part of the stem naked and much branched. Leaves subcoriaceous and subhirsute, as observed by Wahlenberg, their points ciliate. Flowers large, pure white. Smith says the styles are sometimes 4 and 5, and my capsules have decidedly 16 teeth, so that I have no doubt but future observations upon fresh specimens will induce us to raise it to the genus *Crassum*, and the 513. name of Mr. G. Don may very well be retained to it. It is common in Ireland, England, and Norway.

δ. S. nuphara (many-styled *Schreberei*), stem shorter than the flower-stalks, leaves linear-lanceolate rounded puberulifimbriate at the margin, cal. 5-nerved as long as the petals. E. B. t. 1209 (leaves much too broadly).

HAB. Hills to the North of Dunsford, and about Loch Neria, G. Don. Fl. June. ♀.

I possess only cultivated specimens of this remarkable plant, which was first described by Willdenow. He attributes to it single-flowered peduncles, but in my plants these peduncles, of which many arise from the axillary of the very short stems, are mostly branched in the middle, where they bear 2 small erect acute nondescript bristles.

13. ARENARIA.

* *Emarginate. † Leaves erect.*

1. *A. prostrata* (*Sandwicz Sandwort*), leaves ovate acute fleshy, Ligust. p. 329. E. B. t. 160.

HAB. Sandwicz, in loose sandy soils, frequent, as on the shores by Leith, &c. Ligust. Fl. July. ♀.

5-6 long and creeping, slender. Stems decumbent at the base, branches erect. Leaves large, decussate, coriaceous, fleshy, shining, a little recurved. Flowers solitary, or 2-3 together, in the axils of the upper leaves, nearly sessile. Cal. smooth. Petals white, weak, scarcely longer than the cal. distinct, broadly ovate, shortly clawed. Caps. large, roundish, with many black seeds—A species with a very different habit from any other *Arenaria*.

2. *A. frimosa* (*Stem-nerved Sandwort*), leaves ovate acute petiolate 3- (rarely 5-) nerved ciliated, flowers solitary, calycis rough on the keel with 3 obscure ribs. Ligust. p. 340. E. B. t. 1483.

HAB. Shady woods, &c., as Moine hill and Darglass Den, Dr. Ferriar. Callington and Roslyn woods and hedges near Rothall, Killyn. May 4. Moist woods and borders of fields about Glasgow, but not common, Moak. Fl. May. ♂.

Stems 1 ft. high, slender, much branched, pubescent. Upper leaves sessile. Floerrets one inch or more long, from the forkings of the rachis of the stems, in fruit spreading, the upper part dehiscent. Petals oblong-obovate, white, scarcely longer than the acute segment of the cal.

3. *A. serpyllifolia* (Thymus-leaved Sandwort), leaves among stems subuloseous sessile, calyx hairy its outer leaves 3-ribbed. *Lightf.* p. 230. *E. B. &* 1823.

Hab. Walls and dry waste places, frequent. *R. Jam.* ☉.

Two to six inches high, erect or procumbent, much branched, pubescent. Leaves small, rather rigid. Flowers white, on short stalks from forkings of the upper part of the stem or the axils of the leaves. Petals as long as the cal.

*** *Entipetale*. Leaves subulate.

4. *A. arvens* (moss of Sandwort), stems (no leaves) panicled above, leaves subulate rather oblong striated, petals obscure longer than the 3-nered cal. *Lightf.* p. 231 (and p. 232 *A. serpyllifolia*). *E. B. &* 1812.

Hab. Mountainous pastures, as Arthur's Seat, &c., *Lightf.* King's Park and Blackford hill, Edinb., plentiful, March. *R. Jam.* June. ☉. Stems 2—3 inches high, slightly hairy, as well as the acute-acuminate cal and peduncles.

5. *A. humifolia* (low-leaved Sandwort), stem more or less branched, branches panicled at their extremities, leaves subulate sessile, petals lanceolate less than twice the linear-ovate very acuminate 3-nered cal. *Lightf.* p. 1102. *E. B. &* 1813.

Hab. Walls, rocks and stony barren soils, but rare, Crummock island in the Firth, Mr. Taites. Near Pettycur harbour, *G. Jam.* *R. Jam.* July. ☉.

Stems 4—8 inches high, throughout remarkably slender, especially the peduncles; glabrous.

6. *A. foetida* (fowl-topped Sandwort), stem erect straight, leaves hooked subulate-acuminate erect, flowers hooked, cal. much exserted (white) with 3 central (green) nerves twice as long as the acute petals. *E. B. &* 1744. *A. foetida* Jacq. and Decand.; not *Linn.*, according to *Sm.*

Hab. Fife-shire, and rocks on the Angus-shire mountains, *G. Jam.* *R. Jam.* ☉. (*A. Decand.*)

Four to six inches high, more or less branched. Very peculiar in its habit and structure, and unlike any other British species. "Stems beautifully toothed, on long stalks." *Sm.*

*** *Stipules* at the base of each pair of leaves.

7. *A. vulgar* (purple Sandwort), stems prostrate, leaves narrow linear sessile plane somewhat fleshy tipped with a very minute bristle, stipules acute clove, capsule as long as the cal., seeds compressed angular roughish. *Lightf.* p. 231. *E. B. &* 1822.

Hab. Grassily or sandy soils, frequent. *R. Jam.* ☉.

Very much branched and spreading. Always a pair of acute, sessile,

flowers, white, membranous scales united at their base. Flowers numerous, in the axils of the upper leaves, solitary. Cal. narrow-lance, and, as well as the rather short pedicels, glandular and ciliol. Prothecate, red, about as long as the cal. Pedicels rather flowering slightly bent back. The scale constitutes the essential character by which this species is distinguished from the following:

8. *A. maritima* (Sea-side purple Scotchwort), stems prostrate, leaves sessile, horizontal fleshy sessile, stipules ovate ciliol., capsule longer than the cal., seed encased in smooth with a broad membranous pericardial border. *Lepidif. (d. rubra B.). E. B. t. 523.*

HAB. Common on the sea-coast. Banks of the Clyde at Helensburgh. *Jl. Junc. July.* *♂ (Sm.) ♀ (Neph.).*

Much larger and stouter in all its parts than the last, besides the remarkable difference in the seeds. It is also less branched and the flowers are fewer. Do not these differences depend upon situation?

14. CHERLERIA.

1. *Ch. rubra* (leafy Cherleria), *Lepidif. p. 232. E. B. t. 1213.*

HAB. Near the summit of the Highland mountains, not unfrequent. Ben Todharney and Ben Chalken in Breadalbane; on Balmoral in Hunt, *Lepidif.* On Mull-gara and Mull-nammonach, between Breadalbane and Glen Lyon, and on Ben Achulach in the River of Glenorchy, Dr. Stuart. Ben Lomond, *Morph. Fl. July, Aug. 21.*

Stems 2 or 3 inches high, excessively tufted as in *Salix nemosa*, or even more dense. Leaves crowded, lance-subulate, channelled above, slightly elliptical and glandular at the edge. Flowers solitary, terminal, on short pedicels. Cal. yellow green, membranous at the edge.

4. PENTAGYNIA.

15. COTYLEDON.

1. *C. Umbilica* (Pied Pennycress), leaves petiole sessile depressed in the centre, stem spoked with the numerous racemes of pendulous flowers, upper bracteous sessile entire. *Lepidif. p. 234. E. B. t. 1223.*

HAB. Rocks and old buildings, but very local. Drumochter, W. side of the lake of Arvon, Craig of Ailua and mine of L. colts-hill, *Lepidif.* Near Campbell-croft, Mr. Brown. By the light-house of the L. de Cambray on the Clyde, Dr. Brown. Common on rocks and old walls along the coast from Kelly to Largo, Arvon, &c., Mr. Brown. *Jl. Junc. July.* *♀*

Stems from 6 inches to a foot high, rounded. Whole plant succulent, leaves mostly radical. Flowers cylindrical, yellowish green.

16. SEDUM.

* Leaves plain

1. *S. Telephium* (Oxypis), leaves flatish serrated, scyntha leafy, stem erect. *Lepidif. p. 234. E. B. t. 1213.*

HAB. Borders of fields, bridges and waste places. Upon a rock on the right-hand side of the road going from Dunblane to Glasgow,

Light? Two in E. of Dunbarton, under hedges, Dr. Fergus. Hedge-banks near Bannock, Mough Field between Whitnash and Gushlath, plant field, *High?* Near Leslie, Inverchanning, Mr. Stewart. Timpair Low, Mr. Walker. Fields on Clyde side, a mile below the Pri. Garden, Glasgow, Mr. Murray. *Fl* July. $\frac{1}{2}$.

One to two feet high. Stem spotted. Leaves large. Flowers purple. —Very unlike any other British species.

²² Leaves rounded, joined by their base.

2. *S. deeply-flora* (thick-braved Stone-crop), leaves opposite (alternate as the flowering stems) cordato-ovate obtuse fleshy, stem weak, pedicels glaucous. *E. B. t.* 437.

Hill. Rocks and walls, rare. Collington woods, Mr. Stewart. *Fl* June. $\frac{1}{2}$. Stem slender, creeping at the base, suberect, dense producing flowers a row, 2—3 inches high. Leaves irregularly thick and fleshy, glaucous, with a red tinge and dotted. Flowers white, tinged with rose colour. Petals often 6, and stem, 12.

3. *S. album* (white Stone-crop), leaves scattered along cylindrical stems spreading, stems much branched, *L. B. t.* 1578.

Hill. Walls and rocks, rare. House-tops at Fort, Glasgow, Mr. Stewart. *Fl* July. $\frac{1}{2}$.

Stems creeping below. Flowering stems erect, 2—4 inches high, reddish. Leaves pale glaucous green, edged frequently with red. Cymes crowded. Flowers white or only edged with rose colour.

4. *S. villosum* (hairy Stone-crop), leaves scattered along plane above and as well as the petioles and stems hairy and woolly. *Light?* p. 237. *E. B. t.* 394.

Hill. Hops and moist rocks by the sides of mountains, abundant. Pentlands-hill, Dr. Fergus. Hills above Castlemilk and Cathkin, Dr. *High?* *Fl* June, July. $\frac{1}{2}$ (500).

Stems erect, 2—3 inches high, reddish, as are the leaves, or purplish red. A few stems sometimes are thrown out from the base, on which the leaves are cylindrical. Flowers few, alternate, on two or three terminal leafy branches, bearing a few corymbs. Cal. whitish rose colour.

²³ Leaves rounded, produced below the point of insertion into a kind of spur, which is joined to the stem.

5. *S. anglicum* (English Stone-crop), leaves ovate gibbous fleshy produced at the base alternate, cymes lax. *Light?* p. 235 (*S. saloni*). *E. B. t.* 171.

Hill. Walls and rocks, frequent, especially in dry exposed situations, as rock of Dunbarton Castle. *Fl* June, July. $\frac{1}{2}$.

Two to three inches high, much branched, procumbent below. Leaves glaucous green, often with a reddish tinge. Flowers few, but very conspicuous from their white starlike appearance, and their purple anthers. Petals externally edged with rose colour.

6. *S. rose* (Jarring Stone-crop), leaves ovate gibbous fleshy produced at the base alternate, cymes triid leafy. *Light?* p. 235. *E. B. t.* 504.

Hill. Rocks, walls and many places, not uncommon. *Fl* June. $\frac{1}{2}$.

Hard as it may be to define, is the specific character, the marks that shall distinguish this from the last, no difficulty will arise when we know size (2—4 inches in height) and its height when the leaves are taken into consideration. Very hairy when shaved, and hence called *Wool-pepper*.

7. *S. repensum* (golden Stone-crop), leaves scattered subulate finely produced at the base, flowers subglobose. *Lichtf.* p. 254. *E. B. t.* 693.

On walls, rock of houses and thatched buildings, but rare. In a village going from Rindö to Lund Skarv's, Dr. Furman. Walls about Cragcroft, Edels. *Norph.* Ruins of Cragcroft castle, Gång. *Norph.* Wall at Carastigåne hill, Edels. *Mr. Grenth.* *Fl. July.* 3.

Stems branched with thickly placed leaves, often reflexed. Flowering stem 2—4 inches high. Open large, yellow. Flowers numerous, often of 2 petals and 12 stam.—Very similar to this plant are the three species of Smith, *S. planum*, *repens* and *fruticulosum*.

17. ORALIS.

1. *O. Asinella* (*Wool-cress*), leaves all radical ternate linearly heart-shaped hairy, scape single-flowered, root squarose. *Lichtf.* p. 255. *E. B. t.* 769.

Has Woods and hedge-lanes, frequent. *Fl. May.* 7.

Leaf-stems long and slender, reddish. Leaves drooping at night. Scape with 2 wide bractes. Flower handsome, drooping, white, with purple veins. The leaves have a very agreeable and fragrant.

2. *O. corniculata* (yellow procumbent *Wool-cress*), stems branched spreading, leaves single or subumbellate shorter than the petioles, leaves ternate obcordate pubescent. *E. B. t.* 1726.

Has Near Sörby, Old Rudman a *E. B.* Old wall between the Åsen and Borsålsås, *Norph.* *Fl.* the summer through 3.

Stems 10 inches tall. Flowers small, yellow, single or two together upon pedicels, with two minute bractes at their base. Caps. large, oblong. Seeds with a very elastic aril.—This is a perfect weed in many gardens in Denmark.

18. AGROSTEMMA.

1. *A. Giliago* (Corn Cistle) hairy, root much longer than the stem, petals entire decussate of a crown. *Lichtf.* p. 228. *E. B. t.* 741.

Has Corn-fields, too frequent. *Fl. June, July.* 9.

Two feet high, branched, erect. Leaves linear-lanceolate. Cal ribbed, its segments very long. Flower large, purple.

19. LYCHNIS.

1. *L. Flos Cechæ* (Meadow Lychnis or ragged *Stella*), leaves loosely pinnated, petals 4-lobed, capsule roundish 1-celled. *Lichtf.* p. 120. *E. B. t.* 373.

Has. Moist meadows and pastures, frequent. *Fl. June.* 7.

One to two feet high, reddish green, shining above. Leaves lanceolate. Cal. and five corolla reddish purple. Petals rose coloured.

2. *L. Flineus* (red German Catnip), petals slightly notched at the extremity, capsule 3-celled, stem clamping at the joints. *Lightf.* p. 240. *E. R. L.* 788.

HAB. Rocks in Edinburgh Park, *St. Peters*. Blackford hill near Edinburgh, *Monk*. Dundee hill, near *Widdowan*, *St. P.* North Bucks being the West a little to the E. of Newburgh, *Folchley*. *M. Don*, and with a white flower on dry banks near *Jarvis Cliffe*, *G. Don*. Glen between *Kerron* and the bridge of *Kerr*, and close of *Bathburgh*, *Perthshire*, *Monk*. *St. June*. *N*.

One foot high, glabrous. *Leaves* lanceolate, serrulate. *Flowers* a dense panicle, large, rose coloured.

3. *L. alpinus* (red alpine Campion), glabrous, petals bilobed, flowers very oblique-capitate, capsule 1-celled. *E. R. L.* 784-5. *M. Don*, *Don*, of rare Plants of *Scotl.* p. 9.)

HAB. Rocks near the summit of the *Clon* mountains, *G. Don* to *E. Scot.* *St. June*, July. *N*.

Five to six inches high, by no means vivid. *Leaves* lanceolate. *Flowers* rather small, rose coloured.

4. *L. alpinus* (red Campion), leaves cordate, capsule 1-celled. *Lightf.* p. 240.

a. Flowers red. *E. R. L.* 1178. *L. alpinus*, *Scotl. Gr.*

b. Flowers white. *E. R. L.* 1280. *L. alpinus*, *Scotl. Gr.*

HAB. Under hedges and in grass-fields, common. *Fl.* through the summer. *N*.

One to two feet high, pointed above. Pubescent, thick in a slight degree about the joints of the stem. *Leaves* ovate, or ovate lanceolate. *Cal* in the flower-bearing flowers very linear, in the fruit-bearing ones ovate. In a the petals are rose coloured and are destitute of veils, in b they are pure white, and towards evening edged an agreeable violet. The different appearances in these two cases, independently of colour, described by authors, are found not to be constant, and *Smith* does not agree with the continental botanists, who consider them distinct species. Indeed in England I have observed an intermediate state of a very pale rose colour.

20. CERASTIUM.

* Petals not exceeding the calyx in length.

1. *C. vulgatum* (broad-leaved Mouse-ear Chickweed), hairy vivid pubescent, leaves ovate, leaves subsessile longer than their petioles. *Lightf.* p. 240. *E. R. L.* 788.

HAB. Fields, pastures and road-sides, common. *St. Apr*—*June*. *Q*. Six to ten inches high, branched below, dichotomous above. Petals narrow, half of the extremity. Caps. cylindrical, as long again as the cal.

2. *C. diuianum* (narrow-leaved Mouse-ear Chickweed), hairy vivid spreading, leaves oblong-lanceolate, flowers somewhat pointed shorter than their petioles. *Lightf.* p. 240. *E. R. L.* 790.

HAB. Pastures and waste places, on hills, &c. *Fl.* the whole summer. *N*.

More resembling the last, but a longer, rounder and spreading plant, with longer and narrower leaves and flowers, shorter than their foot-stalks in general, and especially so in fruit. Petals held in the maturity.

3. *C. aculeatostylus* (small *Spina-rose* Chickweed), hairy viscid suberect, leaves oblongo-acute, flowers somewhat petaloid shorter than their pedicels, stem, l., petals but slightly nashed, *Egghf.* p. 241. *J. R. L. 1819.* *C. pusillus*, *Cart. Lond. ed. l.*

Hab. Hills about Arthur's Seat, Dr. Parsons. Walls about the King's Park, Edinb., *Boyle.* *Pl. May.* ☉.

No author seems to doubt this being a good species, yet I leave not what character of importance can be found. All agree that the number of stam. is not constant, and then, even in the less deeply notched and perhaps rather shorter petals, and the several root, I do not see how it is to be distinguished from *C. roseorum*.

4. *C. tetrandrum* (*Astrandrum* Chickweed), "hairy suberect, flowers quadrifid tetrandrum, petals held shorter than the cal." (*Stu.*) *J. R. L. 1815* (*Sagina corniculata*).

Hab. Sandy shepherd rocks about the Park of Forth, Fife, W. Wall top, near Edinb., Mr. Ascott. *Angustifolius* erect, 6. *Don* Isle of Man, *Boyle*, Dr. Don. *Pl. May, June.* ☉.

"Stems prostrate, dichotomous, hairy in the upper part. Leaves opposite or oblong, revolute. Flowers solitary, are longish hastate-lance from each division of the stem, which hastate-lance in the fruit spread become reflexed. Petals drawn, white. Caps. with 8 teeth." *Stu.* as *E. Bot.* "Caps. scarcely longer than the cal." *Cart.* 4.

"* Petals longer than the calyx.

5. *C. serena* (*Feld* Chickweed), leaves linear-lanceolate more or less pubescent especially at the base, petals twice as long as the cal. *Egghf.* p. 241, *J. R. L. 181.*

Hab. Dry grassy pastures, but not common. Feet of walls near

*The three individuals, *C. aculeatostylus*, *C. pusillus* of *Dufur* and *Cart.* and *C. A. roseorum*, are all met with in the vicinity of Yarmouth, and I find the following observations which were made some years ago by Mr. Turner and my self upon one of specimens. *C. aculeatostylus* differs from *C. pusillus* almost solely in the longer size of the petals of the latter, in proportion to the calyx. In the unexpanded and undeveloped state there is no distinction. *C. tetrandrum* varies with 5 stam. and as many calyxes longer, and when thus in this case, there is no reason of distinguishing it from *C. aculeat.* but by the smaller size, more upright roots of green and yellowish white, circumstances which would not seem to be departed on. For *James Smith's* figure in *J. R. L.* agrees neither with our specimens, nor with *Cart.*'s representation, but with his own specimens preserved in Mr. Turner's Herbarium. The size of the petals in our plants is intermediate between *C. aculeatostylus* and *pusillus*, and when it has 5 stam. and petals, it seems formed to unite the three individuals under *aculeatostylus*.

Wash. by Kuhn, abundant, *Lightf.* Grillon Lake, Mr. Armit. New Fort, D. Don. *Fl. June* 2.

Stems branched and decumbent at the base, only a span high, slender. Flowers large, pure white, 2 or 3, on terminal stalks. Caps scarcely longer than the cal.

6. *C. alpinum* (sandy alpine Chisholm?), subglabrous or clothed with long white soft silky hairs, leaves elliptical ovate, flowers 1—3, capsule oblong curved. *Lightf.* p. 343. t. 9 (*C. latifolium*), a good fig. *E. B. t.* 472.

Hill Highland mountains, not rare, Ben Lomond, Ben Lawers, Ben Nevis, &c. *Fl. July* 2.

Stems branched below and creeping, then erect, 2—3 inches high. Flowers large, handsome, white. Petals filed at the point.

7. *C. latifolium* (pubescent alpine Chisholm?), clothed with short rigid yellowish pubescence, leaves elliptical ovate, flowers 1—3, "capsule ovate" (Sm.). *E. B. t.* 473.

Hill Highland mountains, I suspect, rare. I have gathered it on Ben Nevis Ben Lawers, Moun. Ben Lomond, Mr. Murray. E. side of Ben Yoidich, Mr. Armit. *Fl. July* 2.

Generally smaller than the last, and probably often confounded with it. The chief distinction is in the caps. There is also, as Sir James Smith observes, a considerable difference in the clothing of the stem and leaves, which in my specimens of long I find to be always yellowish. Lowermost leaves frequently glabrous. Flowers large, as in the last.

8. *C. aquaticum* (Water Chisholm?), upper leaves cordato-ovate sessile, flowers solitary, fruit pendulous. *Lightf.* p. 343. *E. B. t.* 538.

Hill. Sides of rivers and ditches, occasionally. *Fl. July* 2.

Stem 1—2 feet long, branched and straggling. Leaves large, lower ones on petioles, with short pointed hairs on the edges and margins, whilst those of *Arctostaphylos* (to which this is so closely allied), besides having 5 styles, is only clothed on the margin, and appears on the surface, when seen under the microscope, very minutely dotted with raised points. Stems rigid upwards. The capsule with 3 teeth or valves. In this respect, too, agreeing best with *Arctostaphylos*, where, indeed, Pennon has placed it.

23. SPERGULA.

1. *S. arvensis* (Corn Sparrow), leaves clothed with minute membranaceous stipules at the base, stalk of the fruit reflexed, style more or less margined. *Lightf.* p. 343. *E. B. t.* 1325, and t. 1326 (*S. pentandrus*).

Hill Corn-fields, frequent. *Fl. Aug.* 2.

Stems 6—12 inches high, swelling at the joints. Leaves narrow, linear, rounded, glabrous or a little pubescent, of 2 bundles from each joint, spreading in a whorled manner. Petiole of many flowers. Pet. corolla, white, rather longer than the cal. Sperm. often 8. Sperm.

roundish, depressed, globose, dotted with raised points; varying extremely in the breadth of the margin. Such as is figured in the *S. pentagyna* of Kun. is very common. I should even doubt if the foreign *pentagyna* be distinct from this; though its margin is, as Wahlenberg says, "broad, membranaceous, petiolate, and united in a radiated manner;" and differing from *S. arvensis*, as Smith justly observes, as *Arenaria maritima* does from *A. rubra*. In the present time, however, intermediate states are common.

3. *S. medows* (knotted Sparrow), leaves subulate opposite glabrous; couette the lower ones sheathing; upper ones bearing clusters of young leaves, petals much longer than the cal. *Lightf.* p. 244. *E. B. t.* 684.

HAB. Wet sandy places, by the sides of lakes and marshes. Bog beyond Penzance, plentiful, and beside of the Clyde at Breckin bog, *Wagh.* 21 July, Aug. 2.

Three to four inches high, branched and decumbent at the base, where the leaves are three quarters of an inch long, but gradually becoming smaller upwards. Flowers large, white, ten or there on the terminal branches, peduncled. Whole plant glabrous. Cal. streroseous.

3. *S. subulate* (awl-shaped Sparrow), leaves subulate subulinate tipped with a broadly point, peduncles solitary very long, petals and capsule as long as the calyx. *Lightf.* p. 244 (*S. levis*). *E. B. t.* 1052.

HAB. Dry pastures, gravelly and stony places. Pasture W. of Magdalen castle, *Wagh.* Hills S. of Birmingham, Falskire, Craig Rennie, one of the Ockill hills, plentiful, *D. Don.* Near Farnley, *G. Don.* 21 June, July 2.

Small plant, scarcely two inches high, branched and decumbent at the base, each branch terminating in a flowerstalk 1 inch long, with a small flower, which is erect when expanded, but generally drooping before and after. I fear the glaucous hairs figured by Cassia, and upon which so much reliance is placed by Smith, will afford no character, as I have specimens (collected often at a time) perfectly glabrous in every part. It approaches very near the following species, but is smaller, paler green, has a decided hoary point, and the capsule is much shorter.

4. *S. angustoides* (Peep-sparrow Sparrow), glabrous, leaves subulate acute undulose, peduncles solitary, very long, flowers decussate, petals as long as the cal, caps. twice as long, *E. B. t.* 2108.

HAB. Mountains Upon Mont-glyrdy, where I believe it was first discovered in Britain by *G. Don.* Clons and other Highland mountains, *D. Don.* 21 June 2.

This, as well as the last, has much resemblance to *Sedum pinnatifidum*. Wahlenberg says it is readily distinguished from *S. angustoides* by its drooping flowers. But according to the *E. B.* *Sedum* this character does not seem to be constant.

XI. DODECANDRIA.

1. MONOGYNIA.

1. *Asarum*. Perianth single, 3-8d, superior. Caps. 6-celled.
2. *Lithospermum*. Cal. inferior, with 12 teeth. Petals 6, inserted upon the cal. Caps. oblong, 3-celled.

2. DIGYNIA.

3. *Asarum*. Cal. 3-lobed, with a lobed appendage (bractee) at its base. Petals 6, inserted upon the cal. Pericarpe 3 in the bottom of the cal.

3. TRIGYNIA.

4. *Rumex*. Cal. of 1 leaf, divided. Petals 6-celled. Caps. of 1 cell, opening at the top.
5. *Eorhynchium*. Perianth single, monophyllous, inferior. Nectaries (petals Linn.) 4—6 inserted upon the perianth. Stam. jointed. Caps. pedicellate, 2-lobed*.

(TETRAGYNIA.)

(*Tormentilla officinalis*, Linn. Poite.)

4. DODECAGYNIA.

6. *Sampsonium*. Cal. 12-lobed. Petals 12. Caps. 12.

1. MONOGYNIA.

1. ASARUM.

1. *A. europaeum* (*Asarabacca*), leaves bipinnate reniform obtuse. E. B. t. 1083.

Hill West Runy, near Lifford, New Jersey. (Probably not really a native either of Scotland or of England) 18 May. 3. From scarcely any, two opposite petiolated leaves springing almost

* This genus, it must be noticed, is very anomalous in the structure of the flower in *Asarum*. *Asarum* first, I believe, suggested the idea of what had been hitherto considered a single flower, being in reality, including 1 central pistilliferous flower without stamens, and several stamens-bearing monandrous ones. Brown has proved this most satisfactorily, and further, that the support of the pistil has, at its summit, in some instances, a 3-lobed nect. and that the ped. or the supposed filaments, in its axils, really the verticillates of the stamens, on which the stamens are seated, without a trace of a perianth. See Mr. Brown's *Illustrations of the Botany of N. Holland*, appended to *Flinders' Voyages*, and *Linn. Trans.* v. 12, p. 99.

Immediately from the top of the root, arising. From the axils of these leaves springs a solitary, rather large, drooping flower, upon a short footstalk, of a greenish brown colour, and conspicuous caliculate, its segments incurved. Pistaments produced beyond the caliculi.

2. LYTHRUM.

1. *L. Salicaria* (purple-spiked Loosestrife), leaves opposite cordate-lanceolate, flowers spiked with 12 stam. *Lightf.* p. 247. *E. B. t.* 1065.

Hab. Banks of streams and ditches in marshy places, frequent. *Fl.* July. \odot .

Two to three feet high, erect. Stem 4-sided. Spikes very long, of beautiful purple flowers, placed in whorls. Cal. tubular, striated, with alternate large and small teeth: between the larger ones in the lower margin, are inserted the oblongo-cuneiform petals. Stam. within the tube of the Cal., 4 short and 4 long ones.

3. DIGYNIA.

2. AGRIMONIA.

1. *A. Eupatoria* (*Agrimony*), caulis leaves interruptedly pinnate, terminal leaflet as a footstalk, fruit hinged. *Lightf.* p. 247. *E. B. t.* 1323.

Hab. Borders of fields, and waste places by road-sides. *Fl.* July. \odot .

Two feet high. Leaflets deeply serrated, intermarginally smaller ones fringed—5-lobed. Flowers yellow, and long-tubed spike—Belongs naturally to the Order Rosaceae (*Rosaceae*).

3. TRIGYNIA.

4. RUSCINA.

1. *R. Luteola* (*Dyer's Wood*), leaves lanceolate entire plane, cal. 4-lobed. *Lightf.* p. 248. *E. B. t.* 330.

Hab. Waste places near villages, as about Dysart, Burntisland and Lussdale. *Lightf.* Frequent about Glasgow, M^{rs}. Inverness, Mr. G. Anderson. *Fl.* July. \odot .

Two to three feet high, branched. Spikes long, of numerous yellowish flowers. Stam. numerous, hanging down. Pistaments large, green, exserted on the upper side of the flower. Divisions of the petals linear. Caps. open at the top, even before it is ripe—Used, in dying, as a stain of a yellow colour.

2. *R. Lutea* (*Wild. Affinis*), leaves pinnated upper ones with three segments, cal. 5-lobed. *E. B. t.* 331.

Hab. Hills between Portyarr and Burntisland, Mr. F. Noddy. Near Kirkcaldy, Mr. Chalmers. Between Arbroath and Montrose, G. Dow. Near Balh, in the Cairn of Gower, and to the S. W. of Montrose, F. W. Dow. Road-side between Leithgow and Falsick, M^{rs}. *Fl.* July, Aug. \odot 3m.

Deeper yellow than the last. Two of the petals with broad lobes.

5. EUPHORBIA.*

1. *E. Poplar* (pussy Spurge), umbel of 3-forked rays, partial involucre coriaceous and, as well as the obovate shortly petiolated leaves, entire, sections crescent-shaped hastate. *Lichtf.* p. 248. *E. B.* i. 858.

Hab. Waste places, corn-fields, and gardens. *Fl. Aug.* (3).
Eight to ten inches high, branched. Milky juice very acrid, used to destroy weeds.

2. *E. arvensis* (dwarf Spurge), umbel of 3-forked rays, partial involucre linear-obovate and, as well as the linear-lanceolate leaves, entire. *Lichtf.* p. 248. *E. B.* i. 1330.

Hab. Corn-fields, in light soils and gravelly places. Barrettsland, *Lichtf.* Field at the parsonage, near Maresfield, near Cransgate-toll, and field near Manselburgh, *Wagh.* 17 July—Sept. 6.
Stems erect, rarely simple, 2–6 inches high. Leaves erect. Nervous 4, rounded, with 7-8 hairs.

3. *E. helioscopia* (Sun Spurge), umbel of 3-forked rays, partial involucre obovate and, as well as the wedge-shaped leaves, serrated. *Lichtf.* p. 248. *E. B.* i. 853.

Hab. Corn-fields and gardens, frequent. *Fl. Aug.* (3).
Stems slightly pubescent, 1 foot or more high, often branched at the base. Nervous 4, rounded, entire.

4. *E. hindsii* (heavily-branched Spurge), umbel of many forked rays, partial involucre somewhat heart-shaped and, as well as the linear-obovate leaves, entire. *E. B.* i. 1336.

Hab. Said to have been found on a bank by Lord Abercorn's house, *Lichtf.* Wood near a rivulet at Abercorn, 12 m. from Edinb., Mr. J. Morley. Near Gladsmuir Kirk, in a lane leading from the Haddington road to Elvington, and field near Wind Pilan, 7 m. N W of Edinb., *Wagh.* 4 Fl. July 12.

One to two feet high, with small branches. Nervous large, cordate, long, with long hairs.

5. *E. oppositifolia* (Opposite Spurge), umbel of many forked rays, partial involucre broadly heart-shaped and, as well as the linear lanceolate leaves, entire. *E. B.* i. 543.

Hab. Collington woods, near Edinb., *Mr. Arnott*.
Stems 1 foot high, clothed with numerous narrow leaves, which are,

* This genus, of which as few species are inhabitants of northern latitudes, is attended with many difficulties to the student. The number of characters by no means constant, and do they all appear at once, a decision appears to be necessary for, now that we know that each American itself is distinct from the rest of the umbel, we are enabled, through specimens having fewer than are attributed to them in the specific characters. The shape of the umbels, leaves, and involucres, is much to be depended upon.

however, broader than those of the small branches. *Stomata* ren-
cont-shaped, yellow*.

4. DODECAGYNIA.

6. SIMPERITUM.

1. *S. Tricorne* (Horned), leaves elliptic, *filices* spreading.
Lightf. p. 251. *E. B. t. 1129.*

Hab. On house-tops and walls. Fl July. 2.

The flowers of this well known plant are no less beautiful than they
are curious in their structure. The number of stam. is in reality
24, of which 12, inserted 1 at the base of each petal, are perfect, the
rest alternating with the petals, small and shorter; some bearing
anthers, open longitudinally and laterally, producing instead of pol-
len, shagreened scales, others resembling a coniform point red scale,
in the inside of which, upon a longitudinal receptacle, are likewise
ranged shagreened scales as in the real genera, — thus exhibiting the
most complete transition from stamens to germen in the same in-
dividual flower.

XII. ICOSANDRIA.

1. MONOGYNIA.

1. *Potamo.* Cal. inferior, 5-clas. Pet. 5. *Nut* of the *Drupe*
with slightly prominent veins.

(*Crataegus Oxyacantha*, *Ord. Potamo.*)

(*Dicella*, *Thornia*, *Ternstroia*.)

(*Crataegus Oxyacantha*, *Pyrus decasperis* and *Aria*,
Ord. Potamo.)

2. PENTAGYNIA.

1. *Carthagen.* Cal. superior, 5-clas. Pet. 5. *Fruit* pulpy,
closed*, with from 2—5 2-seeded *Nuts*.
2. *Pyrus.* Cal. superior, 5-clas. Pet. 5. *Apple* with from
2—5 cells; cells generally 2-seeded.
3. *Sorbus.* Cal. inferior, 5-clas. Pet. 5. *Pericarp* 2—12, 1-
celled, 2-valved. *Seeds* 1—3 in each cell.

3. POLYGYNIA.

1. *Rosa.* Cal. (2-clas.), the tube monolam. *Stam.*, including
many hairy pericarps (*Arenaria*). *Stomata* villous. *Small*.

* I dare not introduce the *R. laetipora* into the Horned Flora, since the
only reason given by Mr. Moench, in his *Pl. Germ.* is a garden at Bernoldeke.

* The style being very variable in this class, the *Querc. Pericarpium* is
intended to include those genera which have from 2—5 styles, as well as
Sorbus, in which genus some species have more or less.

* In opposition to the open fruit of the true *Alnus*, as Moench.

6. *RUBUS*. Cal. 3-lobed. Fruit superior, composed of many single-seeded, juicy drupes.
9. *TOXAESTRUM*. Cal. 5-lobed; segments alternately smaller. Pet. 4. Pericarp rounded, fixed to a small dry receptacle.
11. *DRYAS*. Cal. 8—10-lobed; segments equal. Pet. 5—8. Pericarp with long feathery hairs.
7. *FRAXINUS*. Cal. 10-lobed; segments alternately smaller. Pet. 5. Pericarp inserted upon a large pulpy deciduous receptacle.
8. *POTANILLA*. Cal. 10-lobed; segments alternately smaller. Pet. 3. Pericarp rounded, fixed to a small dry receptacle.
10. *GALIA*. Cal. 10-lobed, alternate; segments minute. Pet. 1. Pericarp with a long articulated hair. Receptacle oblong.
12. *CONIUM*. Cal. 10-lobed; segments alternately smaller. Pet. 3, less than the cal. Pericarp inserted upon a large spongy villous permanent receptacle.

(*Spiraea Filipendula*, and *Lilacis*. Ord. *PRUNAE*.)

* 1. MONOGYNIA.

1. PRUNUS.

1. *Pr. Poda* (*Bird Cherry*), flowers in pendulous racemes, leaves alternate deciduous glabrous with two glands at the summit of the petiole. *Lightf.* p. 253. *E. B. t.* 1263.
Siz. Woods, not infrequent. Collington woods, &c. near Edinb. *Along Banks of the Clyde, Kelvin and Carr, Glasgow, May.* About Inverness, Mr. G. Anderson. Fl May. 5.
 Small tree. Leaves acute, doubly serrated. Flowers white. Drupe small, black. Not rare.
2. *Pr. Cerasus* (*Wild Cherry*), flowers in nearly sessile umbels, leaves ovate-lanceolate subserrate beneath. *Lightf.* p. 254 (*Pr. Avium*). *E. B. t.* 706.
Siz. Woods and hedges, not infrequent about Glasgow, *May.* Woods opposite Melville castle, *Lightf.* Perhaps not indigenous. Fl. May. 5.
 Rather a large tree, with very smooth bark and straight branches. Fruit red or black.—The origin of the garden Cherry.
3. *Pr. domestica* (*Wild Plum-tree*), peduncles solitary or two together, leaves ovate-lanceolate subserrate beneath, branches without spines. *E. B. t.* 1783.
Siz. Woods and hedges about Glasgow, *May.*—Seed perhaps carried by birds. Fl. Apr. 5.
 Fruit rather large, round, approaching to ovate, black, with a few bloss. Smith in *E. B.* seems to consider this a var. of the following.
4. *Pr. insidiosa* (*Wild Bullace-tree*), peduncles in pairs, leaves ovate-lanceolate pubescent beneath, branches ending in a spine. *Lightf.* p. 254. *E. B. t.* 841.

Has [Hedges about the Abbey of Melrose, Lightf. Pentland Hills, St. G. Dec. H. May. 5.

Small tree, having black glabrous fruit with a blue bloom.

5. Fr. spinosa (Black-thorn or Sloe-tree), peduncles (mostly) solitary, leaves elliptico-lanceolate subpubescent beneath, branches very spinescent. Lightf. p. 234. E. B. & 843.

Has Hedges, frequent. H. Apr. May. 5.

It is difficult, in a few weeks, to distinguish this well-known shrub from the haw. It is much smaller in all its parts, and the branches are more crested and spinose. In the leaves, the serratures rather considerably advanced at the time of the blossoms appearing; in this the flowers are generally past before the leaves appear. Fruit small, very watery. Used to adulterate Foxglove, as the leaves are so met with too.

3. PENTAGYNIA.

1. CRATÆGUS.

1. *C. Crataegus* (Hawthorn or Whiteflower), spiny, leaves glabrous delt into three or five deep serrated segments the lower ones spreading, flowers corymbose, styles 1—2. Lightf. p. 235. E. B. & 2504.

Has Woods and hedges, almost every where. H. June. 5.

Variable in the form of the leaves and size and colour of the points, which are often fringed with rose colour. The col. too is more or less deep red inside. Few of our native plants can present a more beautiful sight than a well-grown bush of Hawthorn, with its dense masses of white flowers backed by the shining dark green leaves. Nor is it less desirable on account of its wood, though there are many individual plants perfectly destitute of it. It is procured for fences, and burnt clipping extensively. The fruit (or haws) affords a supply of food to innumerable birds in a season when scarcely any thing else is to be obtained.—The *C. monogyna* of Jacquin is but a var. of this.

2. PYRUS.

1. *P. Malus* (Crab-Apple), leaves ovate acute serrated, flowers in a small umbel. Lightf. 238. E. B. & 179.

Has Woods and hedges. Frequent about Glasgow, Sept. H. May. 5.

A good sized tree, the origin of our numerous varieties of garden Apples. Flowers large, fringed with rose colour on the outside. Fruit numerous, of which Viregnia is made.

2. *P. macrocarpa* (Mountain Ash or Rowan-tree), leaves pinnated glabrous on both sides, flowers corymbose. Lightf. p. 234 (*Sorbus europæica*). E. B. & 333.

Has Woods, abundant both in the Highlands and Lowlands. H. May, June. 5.

A small ligustrum tree. Leaves elliptico-lanceolate, serrated, entire at the base. Flowers small but numerous. Fruit red. The wood is much used and valued for its compactness, and the tree itself is possessed of many virtues, according to the superstitious notions of the Highlands.

3. *P. Aris* (white Bramble), leaves acute cut and serrated white and downy beneath, flowers corymbose. *Lichtf.* p. 255 (*Cotoneaster Aris*). *E. B. t.* 1858.

Hill Woods, but not common, *Silvici*. Sea-coast near Lameira, in the lake of Barroca, Dr. Walker. Rocks in the King's Park, Évora, *Maugh.* Fl. June. 4.

Small tree, remarkable for the white pubescence or down upon the under-side of the leaves, *fluorescent* and cut. Voles of the leaves very prominent beneath. *Fruit* smaller.

4. SPIRÆA.

* *Strobilifera*.

1. *S. antiochia* (white-flowered Spiræa), leaves acute-lanceolate serrated glabrous, racemes terminal compound. *E. B. t.* 1485.

Hill Woods. Wild in Scotland, *G. Don*, as *S. Abundant* in woods at Ardara, Craigie hall and Command Bridge, *Maugh.* Clack woods, Mr. Brown. Banks of Curthouse Crag, Glang, *Maugh.* Fl. July. 4.

Small branching shrub. Flowers in crowded racemes, forming a dense sort of spike of a rose colour.

** *Barbarea*.

2. *S. filipendula* (common Drop-leaf), leaves interruptedly pinnate, all the leaflets uniform deeply cut or serrated pinnately-serrate. *Lichtf.* p. 259. *E. B. t.* 284.

Hill. Mountain pasture. Hills to the S.W. of Arthur's Seat, *Lichtf.* Fl. July. 2.

Root with rather long tubers. Stem a foot high, pinnated above. Leaflets small, lanceolate, intermediate ones half their size. *Stipules* united, serrated. Flowers yellowish white, tipped with rose colour.

3. *S. Urtica* (Bread-custard), leaves interruptedly pinnate serrated downy beneath, terminal leaflet largest and lobed, flowers in compound (and as it were prothyrus) cymes. *Lichtf.* p. 259. *E. B. t.* 960.

Hill. Meadows and banks of Estero. Fl. July. 2.

Stem 2—4 feet high, branched upward. *Leaflets* acute, serrate, very large, especially the terminal (generally) 3-lobed ones, intermediate ones minute. Flowers pinkish white, numerous, erect-serrated.

3. POLYGYNIA.

4. ROSA*.

- * *POEONIFOLIOLAE*. *Stipules* with acute rounded, mostly uniform, or unmarked; mostly without bristles. *Leaflets* acute or oblong. *Segments* of the Cal. persistent, persistent. *Stalk* scarcely any.

1. *R. villosa* (red-fruited dwarf Rose), stems crowded equal, fruit elongate peduncles. *Leichtf.* p. 49. *E. B. t.* 1321.

* The *Brachy Rose*, imperfectly as they are now understood, would have been much more so were it not for the accurate correspondence

Mar. *Books of the Day about Mosses*, Mr. Anderson, in *Linn.*

Trans. vol. xi. p. 348. Pt. July. 4.

"*Stemata erect, reddish, 2—4 high, covered all over, as far as their extension, with nearly equal weak bristles and prickles. Setae distant towards their extremities, rounded at the edge, fringed with glands, naked, peristomes sparingly glandular, without hairs as in the *leptota*, which are 7—11, almost flat, oval, pointed, deeply serrated as nearly as, dark green above, paler beneath. Flowers solitary without bristles, pale or deep red; perianthes ligid, tube of the corolla long as, segments of the corolla erect, entire, rough, shorter than the petals, which are concave and emarginate, dark not thickened. First perianthes, long, ovate, scarlet, crowned by the stamens, shorter segments of the corolla." L.—The stems and branches covered with bristles and a few prickles, together with the red glandular fruit, distinguish this species from *R. apocynum*. At the same time I must remark that Mr. Lindley's "*var. gl. melanocarpa fructu nigro haec bracteata*" is, as he himself says, just intermediate between *R. rubella* and *apocynum*.*

whole genus has been subjected to by my friends, Mr. J. W. W. and Mr. Lindley, whose two valuable Monographs, the former of the *British species* in the 18th vol. of the *Linn. Trans.*, the latter in a most excellent work entitled *European Monographs*, have set in a comparatively clear light what was before a mass of confusion. Doubts will still remain as to what are species and what are not. I must confess that I give the preference to the characters and arrangement of Mr. Lindley, and, moreover that I must offer to original remarks or descriptions of equal importance to his, I consider that I am doing an acceptable service to the student of the Scottish mosses in giving all that relates to the genus in Mr. Lindley's new works.

It will be necessary to say a few words on the terms employed by Mr. Lindley, and the degree of importance he attaches to the different parts.

"*Stem* is a term used to express the presence of bristles and prickles collectively.

Stemata (setae) are little straight prickles, tipped with a gland, and known from real glands by their rigidity, greater length, and tendency to pass into prickles. They exist probably in all species upon the rachis, but are quickly changed into prickles by losing their glands. On their presence depend some of the most natural divisions. On the fruit and perianthes, however, they are found to be of little value, for in *R. vulgatum* and *imense* setaceous and naked fruit is borne even on the same bush. They vary between the fruit and perianthes of *R. rubella* and *apocynum*, but appear constant in *R. leucota*, *reticulata*, and *reticulata*.

The form of the peristome (usually distinguished the *Per. Ciliata* from *Plumosa*), and their frequency separate the *Adiantum* from the *leucota*. They are variable and not to be depended upon in the peristome.

Glands are distinguishable by their scent, and are mostly attached to the underside of the leaf as in the *Per. Adiantum*.

Pubescence on the branches, perianthes or tube of the corolla is considered by Mr. L. an invariable character, but it is of little or no consequence in the leaves.

The tube of the corolla and the fruit are in few instances employed in forming distinguishing marks. All varieties of forms may be found in *R. communis* and *reticulata*.

All the forms yet known are found between the 10th and 15th degrees of *R. latifolia*. L.

2. *H. spinosissima* (Barneby Rose), arms unequal, leaflets plane without pubescence simply serrated. *Lindl.* p. 59. *Lepch.* p. 260. *E. B.* 4. 187.

21a. Dry mountain pasture, on sides of hills by Doolingston Loch, &c. *Lepch.* Links near Cochem, with petiole red at the base, Mr. Wochersted and Minge. Back of Shigarty hill, Fildes, and elsewhere, Highlands, Mr. Stuart. *Fl. June.* 4.

- "A dense, compact, dark, (sometimes reddish,) green bush, with creeping roots. Branches short, stiff, much divided, bristly by very dense, unequal prickles and setae, some of the latter being usually filiform. Leaves close together, quite free from pubescence; stipules either narrow or dilated, of nearly equal breadth, petioles setigerosus and prickly, length about 7, bright green, flat, simply serrated, articulation usually so. Flowers solitary, without bractlets, corolliform, black coloured, peduncles naked, or rough with glands and setae, as are the calyxine segments, which are short and setae, tube ovate or nearly round, naked; petals marcescent, concave; disk not thickened; styles villous, distinct. Fruit ovate or nearly round, black or dark purple, covered by the persistent or somewhat spreading segments of the calyx." *L.*

21b. Lindley further observes, that this species varies wonderfully with regard to size, the form of the leaf, and the surface of the pubescence. The branches are sometimes scurred, tortuous or straight, sometimes slender, and very prickly, the younger they are the more they are armed.

3. *H. involucrata* (prickly unexpanded Rose), arms very unequal and crowded, leaflets doubly serrated, petals corollate, fruit baccate. *Lindl.* p. 56. *E. B.* 4. 2008.

Han. Scotch mountains, Dr. Walker. Glen Ligon, Dr. Stuart. Highlands, Mr. J. McKay. Hills of Arvon, G. Don, *Fl. June.* 4.

- Two or three feet high, compact, reddish grey. Branches not much divided, erect, with very strong, dense, unequal, straight prickles and setae, and a revolved leaf. Leaves close together, with a slight recurvature near the base, stipules narrow, somewhat concave, acute, naked, but thickened and fringed with glands; petioles hairy, glandular and setigerosus, a few straight, longer prickles being interspersed, length 5-7, concave, ovate, acute or obtuse, doubly serrated, naked above, or scurvy, and opaque, villous beneath with a few pale glands, scarcely distinguishable from the surface. Flowers solitary, without bractlets, red and white; perianth, spherical tube of the calyx, and simple calyxine segments bristly all over with pungent setae, and clammy glands; petals obcordate, involute, disk a very little elevated, average fruit covered by the converging segments of the calyx.

- "This species nearest *H. setosa*, which is however a tall plant, 2-10 feet high. When its prickles are mixed with bristles, the longest of the former are filiform, when there are no bristles they are straight,

and the leaves are hairy on both sides, sometimes hoary. Peculiar to Scotland? *L.*

4. *R. Sabul* (*Sabine's Rose*), bristles few and prickles unequal distant, leaflets doubly serrated tomentose, segments of the calyx compound. *Lindl.* p. 59. *Woods in Linn. Trans.* v. 12. p. 185.

R. Domina, bristles scarcely any, prickles nearly straight.

Has been found in Scotland by Mr. G. Jackson, Darnley, Mr. Barr, and Hook. J. Mountains of Clon, G. Don, and water of Leith, near Collingdale, Mr. Barr. Abundant in Orkney. Dr. Galtus Fl. June 5.

5. About 5—10 feet high. Branches erect, stout, dark brown, armed with dense, filicose prickles and a few setæ. Leaves grey, distant, stipules narrow, fringed with glands; petioles downy, glandular, armed with stiff prickles; leaflets 3—7, oval, doubly serrate, flat, hairy on both sides, a little glandular beneath. Flowers usually solitary, sometimes in great bunches, peduncles and calyx very bluish; the tube round, calyxine segments compound. Petal round, smaller, fringed with setæ. *L.*

Mr. Lindley doubts whether this may not be, after all, a production of *R. tomentosa*, var. *molle*.

6. *V. Linnæa*. Root-stems straight, prickles nearly so. Leaflets more or oblong, with their serratures spreading. Leaflets of the outer compound, persistent; disk of the calyx thickened, oblong near the mouth.

7. *R. villosa* (*Apple Rose*), leaflets elliptical obtuse, leaf very large with numerous rigid fringed bristles, segments of the calyx round hoary. *Lindl.* p. 74. *E. R. & L.* 1858. *R. gracilis*, *Woods*.

Has Ellis, Broadbent, and coast of Fife, *Lynch*. Woody at Crossedart, near Glasgow, scarcely wild, Hook. Common in some parts of Scotland. See in *E. R.* Fl. June 5.

8. The largest of the genus, sometimes forming a small tree, with a trunk as thick as a man's arm. Branches dull, very glaucous, frequently without any tinge of red, armed with strong, straight, or somewhat filicose, equal prickles, either scattered or under the stipules; involucres with a few setæ dense. Leaves usually very large and gray, densely downy every where; stipules spreading, acute, finely serrated and fringed with glands; petioles glandular, with pale, filicose, unequal prickles; leaflets about 3, very unequal, elliptical, flat, rugose, with a torpidose smell when bruised, very coarsely and doubly serrated, the serratures drooping. Flowers in pairs, either black coloured, or deep red, of a middling size; bractles large, ovate, concave, rugose, hoary, nearly smooth above, peduncles very short, they and the calyx protected by rigid unequal setæ, and clammy with glands; tube round, glaucous, calyxine segments narrow, compound, spreading; petals discolorate, a little curved at the edge; disk elevated, not very thick, stipule-hairy, di-

* These stations very probably are the following species, *R. tomentosa*, which has been often taken for the present one.

anthers, usually much shorter than the ripe fruit. Fruit either purple or deep red, round, with a thickened short pedicel, covered with stiff setae, and enclosed by the connate, pale brown, fleshy segments of the calyx.

- "This flower most readily approaches *R. roseacea*, but the fruit of the latter is never more than biapic, whilst that of the former has a considerable number of rigid bristles, and even prickles, scattered over its surface." L.

6. *R. tomentosa* (Downy-leaved Dog Rose), bracts white rather acute, fruit biapic or naked. *Leatl.* p. 77.

7. *Idem*, thorns less, segments of the calyx compound. *R. tomentosa*, *L. B. L.* 393, et l. 1836 (*R. arbutifolia*).

8. *Idem*, shoots straight, segments of the calyx subsimple. *R. multiflora*, *L. B. L.* 3435. *R. villosa*, *R. heterophylla*, and *R. pulchella*, *Woods*.

Now a fine site between Carleton Park and Cranmond, Mr. Grenville. *R. Banksii* of the Dove, Strathmore, Banffshire, and near Durrow, Scotland. Mr. Anderson, Scotland, Mr. W. Jackson, Roxburgh. Hamilton wood and Edinb., Mr. Barr. and Herb., Fl. Jam. 6.

- "Seven or eight feet high, spreading, very gray. Branches somewhat glaucous, armed with straight (rarely bifurcate), equal, scattered prickles and stiff setae. Leaves hairy with down; stipules connate, dilated, toothed and fringed with glands, petioles slightly prickly and glandular, bracts about 2, oblong or ovate, chamois, slightly serrated; nervures diverging, rarely converging; sili and rugose, pale beneath, and sometimes slightly glandular; when hooked taking a serpentine curl. Flowers are or more, sessile, rep-angled, with short stalks, bractlets ovate or oblong, downy, longer or shorter than the petioles, which are biapic with unequal setae and glands, tube of the calyx ovate, oblong or round, usually biapic, sometimes nearly smooth, segments of the calyx compound, spreading, always biapic at the base, petals entire, obcordate, connate, disk thickened, flat, style very hairy, distinct. Fruit somewhat purple, round or obovate, or depressed, usually biapic, crowned by the converging calyx-segments, which sometimes however fall off immediately after the fruit is ripe.

- "An extremely variable species, and closely allied to *R. rosea*. The marks of difference are the straight prickles, diverging nervures, biapic fruit, calyx-segments and petioles, and sick leaves of the former, as contrasted with the hooked prickles, converging nervures, smooth calyx and its deciduous segments, and naked or hardly pubescent leaves of the latter" L.

- "¹¹ *R. mucronata*. Petioles unequal, sometimes setiform, rarely (if ever) none. Bracts ovate or oblong, glandular, with the nervures divergent. Segments of the calyx perianth. Disk mucronated. Shoots leafy. (This division is remarkable for the mucronate glands on the lower surface of the leaves. *R. tomentosa* has sometimes glandular leaves, and in such case the inequality of the prickles of the *Andropogon*, and their red fruit, run along distinguish them.)

7. *R. rubiginosa* (Sc. rot-brist), prickles hooked, leaflets rugose opaque, calyxes and peduncles hispid. *Lincl.* p. 56.

8. *rubiginosa*, prickles strong very unequal, styles hairy, fruit ovate or oblong. *Lighth.* p. 222 (*R. macrophylla*). *R. rubiginosa*, *R. B.* i. 521, *R. aglanthera*, *Woods*.

9. *laevigata*, prickles very much hooked nearly equal, leaflets less glandular, segments of the calyx deciduous before maturity. *R. dumetorum*, *R. B.* i. 5273; or *R. Barrii*, *Woods*.

10. *R. a. Hodges* about Red Hill, Dr. Parsons. Sea-side between Cooline Park and Comman, W. Greville. 3. Near Edinb., Mr. Barre. 11 June. 9

Shrub branched, 3 or 4 feet high, with a more compact habit than *R. canina*. Branches bright green, sericeous, armed with numerous, hooked, unequal, scattered, strong prickles; on the rachis sometimes very small, and tipped with a gland. Leaves dull, rugose, green, very unequally serrated, covered beneath with numerous brown glands; stipules dilated, pectinatised, hairy beneath; petioles with a few strong, unequal prickles; leaflets 1—7, rounded or ovate, pointed, doubly serrated, somewhat spatulate, usually naked above, covered with hairs, and very pale and rugose beneath. Flowers 1—3 together, concave, pale flesh coloured, bractes pale, lanceolate, acute, concave, slightly hairy and glandular; perianths and calyx hispid, with weak setae, tube acute; calyxes segments reflexed, persistent, petiolesqueous, dark much thickened, persistent 30—40, styles hairy, distinct. Fruit orange-red, somewhat oblong or obovate, hispid or smooth, crowned by the ascending segments of the calyx.

Of the 3 European ones, of this species mentioned by Mr. Lindley, besides the two above-mentioned, two others are given as natives of Britain (*R. macrophylla* of *Woods*, and *undulata* of *Leers*), to which a third (*R. spinosa* of *Thunb.*) has since been added by the Rev. Mr. Don; but I am not aware that they have been found in Scotland.

"The more common appearance of this last is a compact, much-branched bush, with pale red flowers in clusters, heavily variegated fruit, and bright green but not shining leaves, which unequally and gradually fragment. All these characters are, however, liable to considerable variation, and have been the foundation of a multitude of supposed species. It is a very remarkable plant, and seems almost to unite *R. ruga* with *R. can*." *L.*

"*Cavendish*. Prickles equal, double. Leaflets weak, without glands; serratures constant. Segments of the calyx deciduous. Bush unbranched, arising near the mouth of the lake. The leaves about 10."

11. *R. canina* (Dog Rose), leaflets rigid ovate, persistent 20—30, *Lincl.* p. 56. *Lighth.* p. 222. *R. B.* i. 521. *R. macrophylla*, *Woods*, *Woods*.

12. *dumetorum*, leaves hairy on both sides, segments of the calyx and peduncles smooth. *R. dumetorum*, *Woods*.

13. *canina*, leaflets sessile hairy on both sides, tube of the calyx elliptical. *R. canina*, *R. B.* i. 2265. *Woods*.

Ran, Hedges, &c., common. ♀ They rail in Mid Lora, Aggishlun, and in South Tey, between Dandeld and Alendiklie. Mr. Bower, Isle Loch Tey, Mr. Anderson, Barla of Clyde, above Clydeside works, *Alph*.—c. Invercruy, C. Lyle, Esq. 21 June. 6.

"A struggling tree, 4—7 feet high. The branches bright green, reddish brown on the underside, armed with strong, scattered, hooked, nearly equal prickles (nearly straight and then much closer together) and no setae. Leaves distant, pale or dark green, frequently tinged with red in exposed situations, usually much blistered by the sun, quite free from pubescence, stipules rather dilated, slightly reflexed, acute-pointed, petiole armed with a few, little, hooked prickles; leaflets 3—7, ovate or oblong, acute or rounded, serrate or subserrate, flat or concave, even or rugose, coarsely or finely, deeply or doubly serrated, the serratures always acute, without glands, and converging. Cyms 1- or many-flowered, dense cymbose, branched, appressed, acute, concave or bellish, finely toment and glandular at the edge, peduncles and calyx smooth, tube ovate, segments of the calyx spreading, sharp-pointed, somewhat divided, petals oblongate, concave, disk very thick, elevated; styles nearly smooth, distinct, included or a little exserted. Fruit ovate or oblong, scarlet, shining without any bloom, pericarp large uneven."

"Scarcely it is not surprising that the most common species of the genus, whose fruit is scarcely ripe before it is devoured by small birds, and separated by them in every variety of soil and situation, should frequently assume features considerably dissimilar to its original appearance; and yet, upon such differences, which in less variable genera would hardly have been treated, have writers upon Ran attempted to establish their species. Much stress has been laid on the circumstance of pubescence; on its absence, presence and quantity. *R. collina*, *dissectum* and *canina* of authors, and *leucostoma* of Woods, are divided from each other; yet a careful observer may trace them running into each other. The var. *canina* is a curious plant, first taken up in E. B. It is scarcely found out of the Highlands of Scotland, and even there very sparingly. Its very glaucous hue distinguishes it. There is a remarkable peculiarity in *R. can.* that the further to the North any var. of it is found, the more villous are the styles; and the less so as it proceeds southwards; these organs being quite destitute of hair in Madeira.—In Turkey, Russia and Siberia, an extremely drink is made from the twigs called *var.*, and the flowers yield a spirit, and are preserved with honey and sugar by the inhabitants of the Volga and Ukraine." L.

***** *Stigma*.—c. Styles coloring in a lengthened column. Stipules white. Habit much like that of the last species.

R. R. arvensis (public Field Ran), shoots flagelliform, prickles unequal dilated, leaflets glaucous beneath. *Lindl.* p. 112. *Laph.* p. 361. E. B. 4. 184.

Ran. Hedges and borders of fields, occasionally. Frequent in the lowlands, Dr. Bower, Isle Loch Tey, *Alph*. 21 June, July 6. *Ran. flagelliformis*, prominent, slender, dull glaucous purple, armed with scattered, dilated, or straightish equal prickles, those of the

old shoots almost white, of the young ones smaller and red, sometimes more (in weak specimens). Leaves distant, dark green, as on a chaffy and pellucid; stipules narrow, flat, naked, fringed with glands, roll in the middle; petioles pubescent, with scattered glands and little lobulate dorsal prickles, leaflets 1—5, flat, ovate, somewhat wavy, simply serrated, very glaucous beneath; the 1st somewhat hairy. Flowers solitary on the branchlets, numerous on the monochots, white, with a yellow tube, and a slight nerve, or first or secondly, afterwards more open; perianths rough with glands and a very few setae; tube of the calyx ovate, naked; calyx lobes arching down, ovate, concave, a little divided, those which are so, rough with glands; petals obovate, emarginate, sinuous persistent, dark elevated, fleshy, germinal 15—25, styles united into a long smooth column. Fruit sessile, round or oblong.

This is readily distinguished by the long smooth column of the styles from all the British species, except the *R. spicata*, which is known by its anthers, not bearing a tube, which are of a bright green colour. *R. arvense* is the *Arvensis* Boiss. of the gardens, figured in Bot. Mag. another, however, goes by that name, the *R. repens* of Mr. Hook. in the *Atlas Phil. Journ.*, which is *R. asperispermum*.

10. *R. stylosa* (Long-styled Boiss.), shoots anthers, prickles very stout hooked. *Edinb. p. 111*. *Woods in Linn. Trans. v. 12. p. 120. E. B. L. 1835 (R. collina)*.

Hab. Hills, Hibernia, and hills to the N. of Malagaire, *Boiss. Fl. Journ.*

A shrub with the habit, and for the most part with the character of *R. rosea*, but differing chiefly in having its styles united into a long smooth column, and more flowers in a cluster.

4. RUBUS

1. *R. idaeus* (Rasp-berry), leaves pinnate with 3 or 5 leaflets white and very downy beneath, festoon-like channelled, stems usually erect prostrate. *Lagref. p. 253. E. B. L. 2449*.

Hab. Woods frequent, even in the Highlands. *Fl. Journ.* 4.

Stems woody and prickly. Leaflets subovate, sinuous but not cleft serrated. Flowers pendulous. Petals small. Fruit sessile in a wild state.

2. *R. ulmaricus* (red-fruited Bramble), leaves pinnate with five or seven ovate leaflets hairy beneath upper ones serrate, stems nearly erect, prickles subulate nearly straight. *Anderson in Linn. Trans. v. 11. p. 118. v. 16. E. B. L. 1871. D. Don, MSS. ined.*

Hab. New Loch Ness and the Highlands of Aberdeenshire and Perthshire, *Anderson*. Woods at Inverury, banks of Loch Deile, two miles from Inverury, road-side between Gairn and Rindrum, *Stroph. Hills of Angusshire, G. Don*. Banks of the burn that runs from Macpherson Loch above the waterfall, and in the wood south of Macpherson Castle, *Boiss.* New Loch Lomond, abundant, *D. Don Fl. Journ.* 4.

Growing tolerably upright, without support. Prickles scattered. Leaf-

lets rounded, acute, sharply serrated, smooth and even above. Petiole rather long, succrose. Prickles rather large, white, somewhat at length reflexed. Fruit of few perfect grains, deep red, agreeable in flavor, and somewhat resembling that of *R. alba*. In habit resembling *R. corylifolia*, but more upright, leaves having often 7 leaflets (never the case with the other two) which are generally more succulent and succrose on the upper surface, the undermost and upper pair sessile, the prickles more rare and shorter, the bark dark red, not purple. *And.*

3. *R. serotina* (*Deur-deurg*), leaves toment very pubescent or hairy beneath the basal ones much lobed externally, stem prickly except prostrate glaucous, cal. enclosing the fruit. *Lightf.* p. 354. *E. R.* i. 536.

Hab. Under bridges and waste places in the Lowlands, but not very common. *Lightf.* Between Dalkeith and Perthshire, 9 m from Edinburgh, near Morph. *Pl. July.* 4.

Stems weak, glaucous-green, subterracous. Leaflets rounded-ovate, cut, slightly lobed at the margin and serrated, the lateral ones with large lobes on the outside. Pet. white or reddish. Fruit rather large, of a few black berries, covered with a blue bloom, of an agreeable, subacid flavor.

4. *R. corylifolia* (*knock-downed Bramble*), "leaves of about 5 ovate leaflets hairy beneath, stems rounded diffuse, with scattered mostly straight prickles." *And.* in *Linn. Trans.* v. 11. p. 219. *L. R.* i. 537.

Hab. Hedges and banks of fields, occasionally; banks of the Clyde about Croyke. *Lightf.* Hedges and woods, common, in Dun Roslyn woods, &c. Mr. Greville. *Pl. July.* 4.

Stems very long, trailing (15–20 feet, *And.*) fragile and spongy, reddish, rarely angled, every where bearing slender straightish prickles. Leaflets hairy, soft beneath. Fruit strawberries, semi-spherical, of an agreeable acid, berries few, rather large, rounded. Cal. of the fruit reflexed. The only steady mark of distinction between the present plant and *R. fruticosus*, notwithstanding that their general appearance is so dissimilar, is that in *R. fruticosus* the prickles are consistently placed on the ridge of the angle or furrow of the stem, whereas those of *R. corylifolia*, besides being more slender, more numerous and of irregular size, are indiscriminately scattered all over the shoot, which is generally round, rarely angled and more spongy and brittle than *R. fruticosus*. *And.*

5. *R. fruticosus* (*common Bramble*), "leaves of about 5 petiolated leaflets hairy with pubescence beneath, prickly upon the angles of the stem, prickles hooked." *And.* *Linn. Trans.* v. 11. p. 221. *Lightf.* p. 354. *E. R.* i. 711.

Hab. Woods and hedges. Frequent about Glasgow. *Lightf.* Mr. Anderson observes that it is seen in the N. of Britain, and that he never saw it in Aberdeenshire or Perthshire, where it gives place to *R. suberosus*. *Pl. July.* 4.

Stems long and very stout, with large and mostly hooked prickles.

Leptis narrower and more attenuated at the base than the leaf, generally hairy beneath, often with scattered hairs on both sides, when it becomes the *R. villosa* of D. Don's MSS. note. Mr Anderson again remarks, under this species, that the only constant mark of distinction between this and the *R. virens* is to be found in the situation of the prothesis.

6. *R. serotilis* (Stone Bramble), leaflets 3 slightly deeper, runners creeping herbaceous, panicle of few flowers. *Lightf.* p. 265. *E. B. t.* 2033.

Hab. Stony mountainous places, especially in the Highlands. Benches woods, Mounk. Pentlands hills, near Collingwood, Mr. Stuart. Clapham wood; Benlison, near Lanark; among hazel bushes a little above Collieston, and at Garrowhill plentifully, Glasgow, Mounk. *Fl. June.* X.

This and the two following species are, happily, so easy to be distinguished as the four preceding ones are difficult. The present is erect, slender, 3—10 inches high, with a few weak, straight prothesis. Leaves 2—3, leaflets sessile. Petals minute, narrow, greenish yellow. Fruit of a very few, red, large, clustered drupes.

7. *R. arcticus* (arctic Bramble), leaflets 3 glaucous obtusely serrated, stem without prickles bearing (mostly) 1 flower, petals somewhat notched. *E. B. t.* 1385.

Hab. Rocky mountainous parts in the Isle of Mull, Dr. Walker. High regions of Ben-y-glo, Ben in Scotland, Richard Cotton, Esq. *Fl. June.* X.

I wish some botanist would confirm the stations above given in *E. B.* But for this beneficial plant, whose fruit is so highly prized by bird-like species. It is impossible for any one in the least versed in plants to confound it with any thing else. Stems 3—6 inches high, slender, bearing 3 or 5 leaves. Flower deep rose colour, large, single. Fruit purplish red.

8. *R. Chamaemorus* (Cloud-berry), dioecious, leaves simple lobed, stem without prickles and bearing a single flower. *Lightf.* p. 266. *t.* 23. *E. B. t.* 716.

Hab. Abundant upon moors of the mountains, especially in the Highlands, on Ben Lomond, &c. Top of the Eastern Cairn hill, one of the Pentlands, Mr. Stevenson and R. A. Stoughton. Clapham and Benlison woods with the *R. serotilis*, and on the Campsie hills, Mounk. *Fl. July.* X.

Root creeping and growing up 2—3 slender, simple stems, about 3 or 10 inches high, with 1 or 2 leaves, which are glaucous, lobed, and serrated. Flower solitary, large, white. Cal of large ovate segments. Petals large, rotundato-ovate, white. Around the germinal in a fleshy ring with short processes tipped with a gland (absorptive tissue?). Fruit of several, large, dull orange-coloured, aggregated drupes, of an agreeable flavour, much used by the people of Norway and Lapland as food, and, being heated in the snow, they keep well through the winter.

7. FRAGARIA.

1. *F. virginica* (Wood Strawberry), stem with creeping runners, hairs of the pedicels appressed verticose. *Lighf.* p. 267. *E. B.* i. 1524.

Hab. Woods, frequent. Fl May—July. Y.

Leaves ternate, silky beneath.

2. *F. elatior* (Hawthay Strawberry), "cul. of the fruit reflexed, hairs of the pedicels and peduncles all very patent and subulate." *E. B.* i. 2187.

Hab. Road-sides and borders of fields near houses, not indigenous. *Lighf.* Old walls at Simsbury. Fl June—Sept. Y.

This is much larger than the last, and said by Smith to be essentially distinguished from it, by the hairs on the peduncles being very patent and even deflexed. My specimens, however, from Brookline, and those gathered by Mr. Brewer in Danvers (as mentioned in *E. B.*) have the hairs on the peduncles quite erect and appressed. The flowers are said to be dioecious. This is not always the case; my specimens having some perfect stamens and producing fruit plentifully. The fruit is deeper red, and has a peculiarly fine flavor. May not this be a var. of the last arising from cultivation, and the plants supposed indigenous be in every instance the variety of garden?"

8. POTENTILLA.

* *Leaves pinnate*

1. *P. anserina* (Silver-wood), leaves interruptedly pinnate deeply serrated silky beneath, stem creeping, peduncles solitary anglic-flowered. *Lighf.* p. 268. *E. B.* i. 661.

Hab. Moist meadows and road-sides, abundant. Fl June, July. Y. Flower varying much in the degree of alkaleness, sometimes silky and white on both sides. Flowers large, yellow. *Lophos* involucrate.

** *Leaves digitate*

2. *P. argentea* (Hoary Cinquefoil), leaves quinate, bracts reniforme not white and dense beneath. Hairs marginate revolute, stem decumbent. *Lighf.* p. 268. *E. B.* i. 661.

Hab. Barren steep-sides in pastures and road-sides, but not common. Dorsal Backsack, near Fresh, &c. *Lighf.* Hillsford hill and Hony-crag, near Schol. Wrough. Craig and between Fresh and bridge of Eps. Mr. Harvey. Backs, Sanday hills, Angus-shire, common. G. Don. Near Newburgh, D. Don. Fl June. Y.

Stems 1 foot long. *Lophos* creeping in width and degree of inclination. Flowers terminal, small, yellow, subsynchronous; calyx white, hairy.

3. *P. verna* (Spring Cinquefoil), radical leaves quinate, bracts obscure green on both sides sharply serrated hairy beneath and at the edges, petals obcordate longer than the cal, stem decumbent. *Lighf.* p. 270. *E. B.* i. 47.

* *P. sterilis* of some authors is here referred to *Potentilla*.

Hab. Rocky hilly pastures, and mountains. E. W. side of Arthur's seat, and near the top of Crag-collench in Broadbushes, Lifford. King's Park, Killybeg, and hills about N. Quernaherry, common. Month. *Pl. May, June.* *X.*

This varies much in the alpine parts of the continent, but with us is a small woody recumbent plant of 4-6 inches in length, more or less hairy. Ligulate obtuse. Flowers at the end of weak leafy branches, 2 or 3 together on long footstalks, yellow.

4. *P. sparsa* (New-leaved Anny Clague-fell), radical leaves of 7 or 8 oblongo-cuneiform deeply serrated hairy leaflets, petals obcordate a little longer than the cal., stem filiform decumbent. *E. B. t. 2448.*

Hab. Referred by the late Mr. Donn, of Cambridge, from Scotland. Hills of Clava, near House of Balquhaden, Perthshire, &c. Don. *Pl. June.* *X.*

Larger in all its parts than *P. revera*, and, as Mr. Neesler observes, in his excellent Monograph of the genus, very nearly indeed allied to it. It differs, he says, in the stem and petioles being of a reddish colour, and the whole plant of a more slender habit; the radical leaves are upon very long footstalks, and the flowers, when past perfection, become drooping, having petals of a golden yellow with a fulvous spot at their base.

5. *P. revera* (golden Clague-fell), radical leaves quinate those of the stem ternate, leaflets wedge-shaped their margins with silky hairs deeply serrated at the extremity, petals obcordate larger than the cal., stem decumbent. *E. B. t. 2461.*

Hab. Ben. Linnis and other mountains in Broadbushes, Mr. J. Mackay in J. B. Near the summit of Ben-y-collench in Broadbushes, Mr. Walker. Hills of Clava and House of Balquhaden, G. Don. *Pl. June, July.* *X.*

"Very different from *P. revera*, not only in the silky fringe, but also in the form of the leaflets, which resemble those of *Alchemilla alpina*." Nees. —For my own part I wish more decided marks could be found for distinguishing the 3 last species.

6. *P. repens* (junken creeping Clague-fell), leaves quinate, leaflets oblongo-cuneiform serrated, peduncles solitary single-flowered longer than the leaf, stem filiform creeping. *Lifford. p. 271. E. B. t. 2462.*

Hab. Meadows and pastures, and by way-sides. Banks of the Clyde, near Dulluth, Miss. *Pl. June—Aug.* *X.*

Stems taking root at the joints, and throwing up at each joint a pair of leaves, which are a little hairy at the edges and nerves beneath, on long petioles. Smaller or exterior segments of the cal as long as the rest, though narrower.

*** *Leaves ternate.*

7. *P. tridentata* (triple-leaved Clague-fell), leaves ternate, leaflets oblongo-cuneiform three-toothed at the extremity glaucous ?

brown above hairy beneath, perianth ovate longer than the cal., stem ascending. *E. B. L.* 2183.

HAB. Warren hill and the East rocks of Clove, G. Den. *Fl* May, June. *2*.

This is the second instance I have on record of a plant which had hitherto been considered a native of N. America only, having been found upon the eastern side of Scotland by the late Mr G. Don. It is totally unlike any other British species, does not exceed 4—5 inches in height, and is terminated by 3 or 4 rather large white flowers.

S. P. Fragaria (Jarvis Strawberry), leaves ternate, leaflets ovate deeply serrated silky on both sides (especially beneath), petals obcordate as long as the cal., stems prostrate. *Poet. Enqyl. Lighf.* p. 268, and *E. B. L.* 1786 (*Fragaria viridis*).

HAB. Woods, banks, and dry pastures. *Fl* March, April. *2*.

Potentilla terminal, single or two together. *Flowers* white. This wants the essential character of *Fragaria*, and is rightly placed by the continental authors in the present genus. *Scots*, or rather semi-scots, rugose, not smooth as is *Fragaria*, according to Smith's definition of that genus.

§ TORMENTILLA.

1. *T. officinalis* (common Tormentil), leaves ternate all round, leaflets lanceolate inciso-serrate, stem mostly erect dichotomous. *Lighf.* p. 371 (*T. erecta*). *E. B. L.* 1861.

HAB. Barren and bristly places, common. *Fl* June, July. *2*.

Root large and woody, used medicinally, and by the Laplanders for staining leather of a red colour. Stem weak, 4—5 inches long. *Potentilla* axillary and terminal. *Flowers* rather small, yellow, drooping before expansion.

2. *T. reptans* (trailing Tormentil), leaves ternate on footstalks, leaflets obovate-cuneiform inciso-dentate, stem prostrate. *Lighf.* p. 373. *E. B. L.* 1864.

HAB. Borders of fields and waste places, but not common. *Siberia* N. side of the coast, Pomerania, below the bridge. *Alph. Roadside* between Rostock and Custruburg. *Mr Murray* Near Kirkcaldy, *Mr Stewart*. Near Ardross, *Mr Stewart*. *Roadside* between Glasgow and the village of Bowling, and near Mochrum, *Perthshire, Alphe*. *Fl* June, July. *2*.

Stems prostrate, but not rooting, varying much in length. *Flowers* twice the size of the last. This, as well as the last species, has sometimes 5 petals and 10 reflexing segments; and then the plant becomes a perfect *Potentilla*, with which it accords exactly in habit. Many of the continental botanists, on these accounts, classed the genus *Tormentilla*; and Knecht has done so with the remark "Monocodium barbatum ab humano genere quæ separaret?"

* The first was *Juncus* *truncatus*.

10. GEUM.

1. *G. urbinum* (common *Anem.*), flowers erect, unmarked, entire leaves ternate, radical ones lyrate-pinnate. *Lichtf.* p. 273. *E. B.* t. 1400.

Hab. Woods and hedges, frequent. *Fl. June.* 2.

Root with a sweet smell that has been compared to cloves. Stems erect, 1—2 feet high. Leaves very variable. Radical ones on long petioles, with 2 or 4 small lateral pinnæ and a great terminal 3-lobed leaflet. Stem leaves sessile, tern or quinate; the lower leaflets, as Mr James Smith observes, however, may rather be considered large stipules, entire, the rest lanceolate; all of them inciso-venate. Flowers small, yellow. Petals monish, entire, patent, as well as the cal.

2. *G. rivale* [*Water Anem.*], flowers drooping, leaves feathery, entire leaves or ternate, radical ones interruptedly pinnate-lyrate. *Lichtf.* p. 274. *E. B.* t. 106.

Hab. Marshes and wet meadow grounds, frequent. *Fl. June, July.* 3.

Stems less slender than the last, and less branched. Flowers much larger, with erect purple calyxes and erect dull orange-coloured petals, which are divided and broadly obcordate. Most of fruit pedicellate. Stems rooted in both species.—There is a var found in Collington woods by Mr. Maughan, which seems perfectly intermediate between this and *G. n. leucum*, and which Smith suggests may be a hybrid.

11. DRYAS.

1. *D. octopetala* (*Minerals Anem.*), petals 8, leaves simple serrated. *Lichtf.* p. 274. *E. B.* t. 451.

Hab. Highland mountains, in many places. Upon the siliceous mountains in Broadbentone; and on the limestone rocks in Stry, on a wet limestone tract called Crag-schmosen, on the confines of Ross-shire and Sutherland, *Lichtf.* Upon Cairn-chang, in Glen Cynna, and near the top of Malmoe, in Gleno, Argyleshire, Do. Argyll. Bores of Laver Naves, and common along the coast of Sutherland, Mr. Barrer and Hook. *Fl. June.* 2.

Stems short, prostrate, scaly from the withered leaves of old leaves. Leaves ovate-elliptical, evergreen, glaucous and whitish above, white and down beneath, margins revolute. Petioles longer than the leaves. Peduncles downy, the down mixed as on the underside of the leaves with purple glands or bristles, solitary. Flowers large, white.

12. COMARUM.

1. *C. palustre* (*Marsh cinquefoil*). *Lichtf.* p. 276. *E. B.* t. 172.

Hab. Ponds, bogs and marshes, frequent. *Fl. July.* 4.

Stems 5—8 inches long, ascending. Leaves petiolate, with 7 lanceolate deeply serrated leaflets, upper ones quinate or ternate, sessile, with a pair of entire scales or cut stipules. Flower-stalk branched. Flowers dingy purple, with a large, coloured, spreading cal and very minute petals. Strongly different in genus from *Potentilla*, where, indeed, Newton places it.

XIII. POLYANDRIA.

I. MONOGYNIA.

* Petals 4.

4. *PARAVITA*. Cal. 3-leaved, caducous. Pet. 4. Stigma rounded. Gyn. superior, discharging its seeds by pores under the permanent stigma.
5. *CARLEPESITUM*. Cal. of 3 leaves, caducous. Pet. 4. Stigma 2-lobed. Pal. superior, linear, 1-celled, of 3 valves. Seeds numerous, coated, free.
5. *GLADUUM*. Cal. of 3 leaves, caducous. Pet. 4. Stigma 2-lobed. Pal. superior, linear, 1-celled, of 3 valves. Seeds numerous, dotted, imbedded in a spongy substance, which fills the pod.
1. *ARTUA*. Cal. of 4 leaves, caducous. Pet. 4. Berry 1-celled. Seeds numerous, plane.

** Petals 3.

2. *CYRTA*. Cal. of 3 leaves, 2 smaller than the rest. Pet. 3. Gyn. superior, with 2 valves and many seeds.
7. *TILIA*. Cal. 5-partite, deciduous. Pet. 5. Pericarp coriaceous (Nat. Decand.), 5-celled, without valves; cells 2-seeded (sometimes only 1 cell and 1 seed).

** Petals numerous.

3. *NYMPHEA*. Cal. of 4—5 leaves. Pet. numerous, inserted upon the germen beneath the stamens. Berry many-celled, many-seeded. Hort. Kew. ed. 2.
6. *NEPTIS* (Sm.). Cal. 5—6 leaves. Pet. numerous, inserted as well as the stem, upon the receptacle. Berry superior, many-celled, many-seeded. Hort. Kew. ed. 2.

2. PENTAGYNIA. (Style 3—6.)

3. *ACQUILARIA*. Cal. (Cor., Sm.) of 3 leaves, deciduous, coloured. Pet. (Nucules, Sm.) 5, terminating below in a horn-shaped spur or sacculus.
10. *STRATIOTA*. Spathe of 2 leaves. Cal. 3-lobed. Gyn. of 3 parts. Berry inferior, angular, with 5 cells, many-seeded. (Randa Luteola, Donac. Turc. Helicturus, Oel. Ponce.)

3. POLYGYNIA.

* Pericarpe indurated, 1-seeded.

13. *THALICTRUM*. Cal. (Pet., Sm.) of 4—5 leaves. Pet. none. Pericarpe without axes (renulax).

12. *CLAMATEA*. Cal. (Pet., Sm.) of 4—6 leaves. Pet. none. Pericarp terminated by a long, smooth feathery awn (tarsate).
 13. *ANASTOM.* Leaves of 3 divided leaves, distant from the flower. Cal. (Cor., Sm.) petaloid, of 3—5 leaves. Pet. none. Pericarp with or without awn.
 14. *ANOMIA*. Cal. of 5 leaves. Pet. 3—10, without any nectary. Pericarp without awn.
 15. *BASTARDIA*. Cal. of 5 leaves. Pet. 3, with a nectariferous pore* at the base. Pericarp without awn. (In *B. FICARIA* there are 5 cal. leaves and many petals.)
 ** Pericarp deltoid, 1-celled, many-seeded.
 16. *CALINA*. Cal. (Cor., Sm.) of 5 leaves, petaloid. Pet. none. Pericarp several, compressed, spreading, with many seeds.
 17. *TUCULIA*. Cal. (Cor., Sm.) of 5 or many leaves. Pet. (Nect., Sm.) 5 or many, tubular, tubular at the base. Pericarp cylindrical, many-seeded.
 18. *HELVINOMIA*. Cal. (Cor., Sm.) of 5 petals, tubular-crown, persistent. Pet. (Nect., Sm.) 5—10, very small, tubular, somewhat two-lipped, nectariferous. Pericarp compressed, usually erect, many-seeded.

1. MONOGYNIA.

1. ACTEA

1. *A. spicata* (Hed. Christopher), *aromatizans*. E. B. t. 308. Has. Clark woods, Ab. Acad. 11 May. X.
 One foot to two feet high, slightly branched, leafy. Leaves petiolate, three-ternate, length 1/2 inch, deep, serrated, the upper ones frequently lobed. Stems on a long stalk, terminal. Petals smaller than the cal., white.

2. CHELIDONIUM

1. *Ch. majus* (Colubier). *Lophyl.* p. 278. E. B. t. 1531. Has. Waste places, about towns and villages, but not common. 18 May. June. X.
 Stem about two feet high, rounded, slightly hairy, brittle, full of a solid-yellow juice. Leaves pinnated, with generally 5 leaflets, which are decurrent, broadly ovate, lobed, with the lobes again crenate-lobed. Flowers on long stalked umbels, yellow, rather small. Ped long, somewhat enlarged.

3. GLAUCIUM

1. *Gl. latum* (yellow-bordered Poppy), *pedunculata* 1-flowered, leaves (of the stem) compoundly dissected, stem glaucous. *Lophyl.* p. 279 (*Chelidonium glaucum*). E. B. t. 8.

* This nectariferous pore is analogous to the tubular petals (anthers of the) in *Trellia* and *Melchioria*, only in these last the broad expansion is wanting which forms the principal part of the petal in *Ranunculus*.

Hab. Sea-coast. Near Queensferry and at Chesham, *Lighth.*
Sandy shores near Gosport and N. Queensferry, *Mough.* Flowers
at Halesborough, plentiful, *Hugh.* Arden, abundant, Mr. Murray. *Fl.*
July, Aug. ☉

One foot to two feet high, every where glaucous. Leaves undulant,
especially on the upper side, lower ones greenish, upper ones
viciously lobed. Flowers very large, beautiful, bright yellow, suc-
ceeded by pods of from 6—10 inches in length.

4. PAPAYER.

* *Capsulae laevis*.

1. *P. Argemone* (long-pointed-headed Poppy), *capsulae clavate*
laevis, stem leafy many-flowered. *Lighth.* p. 279. *E. B.* t. 643.

Hab. Corn-fields, but not common, Dr. Persson. *Fl. June.* ☉

Whole plant hairy, 1 foot or more high, mostly a good deal branched
spreads. Leaves pinnate or bipinnate and cut, the segments nar-
row, lower leaves on long petioles. Flowers small. Petals nar-
row, much.

** *Capsulae glabrae*.

2. *P. delphin* (long-smooth-headed Poppy), *capsulae glabrae*
oblong, stem leafy flowered hairy, bristles of the flower-stalks
appressed, leaves pinnatifid. *Lighth.* p. 290. *E. B.* t. 644.

Hab. Corn-fields, &c., the most common kind in N. Britain, *Lighth.*
Fl. July. ☉

Stems 1 foot to 2 feet high, leafy with spreading hairs. Flowers large.
Petals broad, pale scarlet.

3. *P. Rhoeas* (romana red Poppy), *capsulae glabrae* nearly glo-
bose, stem many-flowered leafy, bristles of the flower-stalks
(as well as of the stem) spreading, leaves pinnatifid, *Lighth.*
p. 279. *E. B.* t. 645.

Hab. Abundant amongst corn. *Fl.* June, July. ☉

Distinctly distinguished from the last by its short capsule, and spread-
ing hairs on the bristles of the flowers. Pet. broad, deep scarlet.

4. *P. corniflorum* (orbate Poppy), *capsulae glabrae* globose, stem
many-flowered and, as well as the glaucous amplexual leaves,
glabrous. *E. B.* t. 2115.

Hab. Published as British in *E. B.* on the authority of specimens sent,
by Mrs. Watson, from the neighbourhood of Oxford House, Anger-
shore, growing in newly-trenched ground, by road-side, &c. *Fl.*
July. ☉

Two to four feet high. Leaves subulate, erect and lobed. Flowers very
large, generally white, with a purple eye, but varying extremely in
colour. Caps. large, globose, with a spreading lobed ligule. From
the capsule capsule apium is extracted: and on this account plants
have been cultivated, the seeds of which have escaped into adjacent
fields. Native of the S. of Europe.

5. *P. umbellatum* (yellow Poppy), *capsulae glabrae* oblong, stem
many-flowered nearly glabrous, leaves pinnate, leaflets petiole
late ovate-lanceolate cut. *E. B.* t. 16,

HAB. Banks of the water of Loch, near Woodhall. Mr. Somerville and Mung. Beid woods and Clack woods, Mr. Brown. 21 June—Aug. 24.

Flowers yellow. Stigma small, upon rather a long style.

5. NYMPHÆA.

1. *N. alba* (white *Water-Lily*). "leaves cordate, stigma of 15 ascending rays." *Hort. Kew. ed. 2. Lightf. p. 355. E. B. t. 155.*

HAB. Lakes and ditches, very frequent. Lockend, Edinb. Mung. Near Glasgow, not uncommon, Mung. and Mr. Murray 21 July 24. This magnificent aquatic, although long retained in the same genus with the following, has many points of difference. There the white petals, so large externally in the great calyx-like segments, internally diminish gradually into stamens. *Nymphæa* enters the central glabrous point of the stigma's cavity. The fruit (or berry, as it is called) is soft and fleshy, covered with the points of mucron of the stam. and petals, and decays without opening. Seeds small, extremely numerous.

6. NYMPHÆA.

1. *N. lutea* (yellow *Water-Lily* or *Naphar*), leaves cordate their lobes approximate, cal. of 5 leaves, stigma expanded (entire) with from 14—20 rays. *Hort. Kew. ed. 2. Lightf. p. 453 and E. B. t. 159 (Nymphæa lat.)*.

HAB. Lakes and ditches, but not very common. Edinb. and Dr. Farquhar. Lockend, Mung. Lakes, frequent, about Glasgow, Mung. In the Clyde 1 m below the Bot Garden, Glasgow, Mr. Murray. 21 July.

Flowers large, yellow, 2 inches in diameter. Cal leaves large. Pet. numerous, very dense, thick and fleshy, deep orange, one row placed just below the stamens. Outer stamens the broadest and something resembling the petals. Fruit (berry) very large, sagon-shaped (whence, I apprehend, in conjunction with the small, the application of the term *Drumf-berry*), glabrous, fleshy. Seeds many, large.

2. *N. Kolensis* (last yellow *Water-Lily* or *Naphar*), leaves cordate-their lobes subapproximate, stigma not (notched, Sm.) with from 6—12 rays. *Hort. Kew. ed. 2. p. 294. Carr. Bot. Mag. t. 1243. E. B. t. 2232 (Naphar minima).*

HAB. Discovered in 1808, by Mr. Rorer, in a pond near the farm of Corrie-Chapel, at the foot (not upon the summit) of Ben Cruachan; also in Loch Balahon. Loch of Moncrieff, Stirlingshire, between the islands and shore, Mr. Brown. Loch Dalke near Inverury, Mung. 21 July.

This plant agrees in every particular with the specimens of *N. Kolensis* I have from N. America, and equally with the specific character given of that species in the 2d ed. of *Hort. Kew.* I cannot, therefore, hesitate about retaining the older name to it. The essential differences are noted in the specific character, to which I refer

said that the plant is smaller in all its parts than the preceding, the flower not measuring an inch across when fully expanded. The petals are two-lobed in both species, and I find but little reliance can be placed on the approximation of the lobes of the leaves. The flower represented in *Bot. Mag.* is smaller than in my *Amuricus* and my Scotch specimens, and the leaves smaller.

7. TILIA.

1. *T. europæa* (*Lime or Linden-tree*), flowers drooping of necessity, leaves cordate acuminate serrated, perianth ribbed woody. *Lichtf.* p. 293. *E. B.* t. 449.

Hab. In walls and avenues, as in January, &c.; but probably not indigenous. *Lichtf.* *St. Jul.* 9.

A large and handsome tree. Flowers small, greenish, fragrant, on a stalked pedicel, springing from the centre of a large, lanceolate, glaucous leaf, which falls off with the fructified ovary. Cal. linear and petalo-canto-lanceolate. Petals generally 1-veined and 1-seeded. Perianth very thick, smooth, in which respect it differs principally from the perianth of *Mok* and *ben*, the anacalypta of *Vitæ* and *Decand.*

8. CISTUS.

1. *C. Reichenherianus* (common *Dwarf Cistus*), somewhat shrubby prostrulent, leaves elliptical oblong somewhat hairy mostly white and pubescent beneath the margin slightly revolute, stipules lanceolate. *Lichtf.* p. 293. *E. B.* t. 137b, and t. 220b (*C. romanicus*).

Hab. Dry pastures, but not very common. King's park, Edinb., and island of Luncorn, *Lichtf.* Banks of the Minn, at Cardhu crags, and pastures about Aulder, *Alph.* Prepared on Umpqua and Custer hills, also on the banks of the Allen, near the bridge, and Moncrieff hill, Mr. Murray. Gravelly hills, Argyleshire, G. Don (under the name of *C. saxatilis*). *St. Jul.* Aug. 9.

Flowers yellow, showy, in lower terminal racemes. Pubescence beneath of all hairy. Very variable in habit, and in the width and revolution of the margin of the leaves. I can find no character to distinguish the *C. Reichenherianus* of *E. B.* either as a species or well marked variety.

2. PENTAGYNIA.

3. AGILEGIA.

1. *A. vulgaris* (common *Columbine*), spur of the petals incurved, capsules hairy, stem leafy many-flowered, leaves nearly glabrous, style as long as filament. *Lichtf.* t. 284. *E. B.* t. 287.

Hab. Woods, not uncommon, as in Callaghan woods, near Edinb., *For. Porosa*. Banks of the Clyde at Mary's Ferry, and at the falls, bottom of Cardhu crags and wood above Castlehill, *Edinb.* *Alph.* Dalhousie, near Glasgow, *Dr. Brown*. Bank below Birling Castle, *Alph.* *St. Jun.* 2.

Two or three feet high. Leaves alternate, length 3—5 lobed, radical ones on long petioles, cauline ones sessile. Flowers large, drooping, mostly purple. Petioles stem imperfect, but not forming a plated lacinated membrane, as described and figured in *E. B.*, at least not in any specimens that I have examined.

10. STRATIOTES.

1. *S. alba* (*Water-soldier*), leaves caulescent triangular subobovate. *E. B. t. 378.*

Hab. Ditches and lakes, Duddington Loch, Mough, Loch of Clunie, See Mr. Macleod. Fossil Loch, Mr. Stewart. Fl. July: 2.

A most remarkable plant, with numerous radical leaves like those of an *Alis*, 4—6 inches long, drawn up from one long stalk, which run deep into the mud. Scape 4—5 inches long, ringed, two-edged. From the center of a two-leaved compound spathe arise one white flower. Pet. large, handsome. Sometimes the flowers are divaricate, and sometimes the stem are on the same flower with the 2- or 6-delt styles.

3. POLYGYNTA.

11. ANEMONE.

1. *A. nemorosa* (*Wood Anemone*), leaves tripartite lobed and cut, involucrate the same petiolate, stem single-flowered, capsules without seeds. *Lighf. p. 294. E. B. t. 351.*

Hab. Moist woods and pastures, and upon the high mountains. Frequent on Ben Lomond. Fl. Apr.—June 4.

Stem 1—5 inches high, simple. Flowers large, white, tinged with purple on the outside.—This is the only one of the beautiful genus of which Scotland can boast, and two out of the four attributed to England (*A. hepatica* and *ranunculoides*) are but the contents of gardens.

12. CLEMATIS.

1. *C. Flammula* (*Tweezer's Rag*), stem arborescent, leaves glaucous, leaflets cordato-ovate incise-lobate, petioles sessile, peduncles rather shorter than the leaves. *E. B. t. 442.*

Hab. Collington woods, Mough. Near Callander, Mr. Stewart. Fl. May, June. 4.

Stem many feet long, climbing. Petioles arising in whorls. Flowers greenish white, pointed. Capsules with long feathery tails, which have a beautiful appearance in the winter.—This plant is common in the S. of Britain, especially in chalky soils: in the N. gradually becoming rarer. Are the plants truly wild in the places above-mentioned?

13. THALICTRUM.

1. *Th. alpinum* (*alpine Meadow-Rue*), stem simple sessile leafless, rootstock simple terminal, flowers drooping, segments of the leaves glaucous. *Lighf. p. 296. E. B. t. 268.*

Hab. Pastures in the highest mountains, plentiful. Fl. July. 2.

Radiated leaves upon long stalks, lobes, leaflets rounded, ovate or lobed, dark green. Stem 10—22. Corolla 2—4. Flowers few.

3. *T. minus* (Lesser Meadow-Rue), leaves tripinnate, leaflets trifid glaucous, flowers pinnated drooping. *Lightf.* p. 252. *E. B. t.* 11.

Has hilly pastures, especially in steep ground. Kil-chonan, in In, and at Irwinhill, *Lightf.* Pastures about Loch Rannoch, in Perthshire, and many other places, *Dr. Stewart.* Lanks of Fallow, Aberdeenshire, plentiful, *Mr Murray.* N. coast of Buchanland and Southside, Caithness, *Mr Bower and Black.*

Stem about 1 foot high. Leaves small, glaucous, glabrous. Petals much bearded.

3. *T. major* (greater Meadow-Rue), "leaves tripinnate, leaflets lobed" (mostly trifid), "branches of the panicle subumbellate, flowers drooping," *Sm.* *E. B. t.* 611.

Has hills about N. Queensferry, *Wagh.* 21 July. Y.

Twice as thick the size of the flowers as all its parts. Leaves often with 3 unequal lobes. I gathered this plant at Queensferry some years ago, in company with my friend Mr. Haughton, and saw many specimens which appeared to me to be intermediate between it and *T. minus*. It certainly affords no good specific character.

4. *T. florum* (common Meadow-Rue), stem erect branched furrowed, leaves bipinnate, leaflets wedge-shaped trifid, panicle much branched subcorymbosum, flowers erect. *Lightf.* p. 254. *E. B. t.* 267.

Has Banks of rivers, but rare. At N. Queensferry, *Dr. Parsons*, but Mr. Arnott suspects the *T. major* has been mistaken for it. Banks of the Clyde, at Dalbeth and Bowling Bay, *High.* Doldrum, and at Edinburgh bridge, *Clug.* *Dr. Brown.* Carnyle woods, on the banks of the Clyde, *Mr Murray.*

Tap to three feet high. Petals very yellow, from the numerous upright stam. It varies in the breadth of the lobes of the leaves.

14. ADONIS.

1. *A. autumnalis* (Common Adonis, or Phoenix's-eye), petals emarginate-concave scarcely longer than the glabrous cal., perianths reflexed collected into an ovate head, stem branched. *E. B. t.* 308.

Has Amongst corn, occasionally about Glasgow, *High.* 21 Sept. Oct. 2.

Eight to twelve inches high. Leaves thick compound, the segments linear. Cor. of about 8, remarkably concave, bright-red petals, which from their colour and globose form have given rise to the French name "*poëtte de sang*," and indeed to its classical generic name, the ancients having supposed it to have sprung from the blood of Adonis.

15. RANUNCULUS.

- * *P. acris* tomentum scabrid. Petals white, stem yellow, with a scarious green joint. (*Desv.*)

1. *R. aquatilis* (Water Creeper), stem floating submerged, leaves capillaceous undulid, floating ones tripartite their lobes cut, petiole obscurely larger than the cal., pericarpis glabrous or hispid. *Lepchf.* p. 236. *E. B. t.* 104.

β. all the leaves capillaceous undulid. *R. paniculata*, Decand. *Syst. Fig. v. 1. p.* 225.

Hab. Lakes, ditches, and rivers, abundant. Fl. May. Y.

This variety is the size and shape of the lobes of the upper leaves, which are generally serrate, and more or less deeply and obtusely cut and notched, sometimes pectate. The pericarpis vary in length. I have seen specimens which before the fruit was ripe had very apparent bristles, but were afterwards glabrous. These slight variations taken into consideration, together with a small difference in the size and shape of the petiole, seem to have given rise to the *R. aquatilis* of Decand. and the *R. elongiflora* of B. Don's MSS. and : for I can find no other marks whatever—in β. all the leaves are repeatedly divided in a di-trichotomous manner, yet gradations of specimens may be found where the one kind runs completely into the other. Sometimes the segments of the dichotomies are short and spreading, so as to form a nearly orbicular outline, at other times they are long and parallel to one another. Decandolle describes the fruit as glabrous, but Mr. G. Don finds the pericarpis tomentose, and hence he separates that appearance from *R. paniculata* under the name of *R. circumscissa*, MSS. and.—Species might thus be multiplied without end.

2. *R. heteroceras* (Hog-leaved Creeper), stem creeping, leaves reniform kidney-shaped with 2—3 rounded entire lobes, petiole small scarcely longer than the cal., stem. 5—20, pericarpis glabrous. *Lepchf.* p. 236. *E. B. t.* 100.

Hab. Ditches and wet places, but not very common. Moist beds of the Clove and the Keweenaw, which are nearly dry in the summer. Mr. Murray. Fl. summer. Y.

** Pericarpis smooth or reticulated (not transversely striated). Petiole with a small scale at the base. (Decand.)

† Flowers white.

3. *R. alberta* (ocean white Creeper), leaves glabrous orbicular deeply 3-lobed, lobes at the extremity lobulato-crenate, stem mostly 1-flowered, petiole obscurely : *E. B. t.* 230.

Hab. Sides of hills on the Chert mountains, G. Don. Fl. May. Y. Four to five inches high. Leaves almost entirely reflexed, on rather short petioles, are generally undulid lanceolate leaf upon the stem. Flower entirely white, large.

†† Flowers yellow. Leaves undulid

4. *R. longus* (great Spear-wood), leaves lanceolate subnervated sessile semispherical, stem erect glabrous. *Lepchf.* p. 236. *E. B. t.* 101.

Hab. Sides of lakes and deep muddy ditches, but not common. Dul-

Angaton Loch, Edinb., Dr. Parsons. Pres M.H. Kinross-shire, Mr. Stewart. Marshes in Arren and near Glasgow, Mr. Murray. Fl. July. 2.

Stems 2—3 feet high. Flowers large.

3. *R. Flammula* (Juncus Spear-wort), leaves linear-lanceolate nearly entire petiolate the lower ones crista-hastate, stem decumbent rooting at the base. *Lightf.* p. 288. *E. B.* t. 387.

4. much smaller, stem creeping filiform. *R. repens*, *Lightf.* p. 288. *fig. frontisp.* v. 1. *Decand. Syst. Veg.* v. 1, p. 348.

Fls. Sides of dikes and ditches, Scotland. 5. Margins of lakes, especially in the Highlands, common. Fl. July, Aug. 2.

The decumbent or creeping ones, the narrow petiolated stem leaves and broader radical ones, together with the smaller ones, are the marks by which this is best known from the preceding.

6. *R. Flaccida* (File-wort), leaves heart-shaped petiolate regular or serrate, cal. of 3 leaves, perianth 9. *Lightf.* p. 289. *E. B.* t. 384. *Præcox canaliculatus*, *Decand.*

Fls. Woods, meadows, soil hedge banks, abundant. Fl. Apr. May. 2. Root of many long lacinated fibres. Leaves petiolate, two or three on the 1-flowered stem. Flowers shining, yellow, very handsome.

††† Flowers yellow. Leaves narrowly divided.

4. Root perennial. Perianths smooth.

7. *R. strictus* (Fined Cross-foot), leaves glabrous radical ones narrower 3-partite and cut, stem-leaves divided to the base into linear subulate segments, cal. pubescent shorter than the petals. *Lightf.* p. 290. *E. B.* t. 384.

Fls. Woods and hedge-banks. Banks of the river opposite Lagros wood, near Dalkeith, Dr. Parsons. Kenmore house, Glasgow, Hugh. Bardin woods, Biddie's Glen and other places near Edinb., also Calton Ground Castle Campbell, near Glasgow, Mr. Stewart. Banks of the Kelvin, Mr. Murray. Fl. Apr. May. 2.

One foot high, slender. Flowers large. Not aerial as most of the other Cross-foots.

8. *R. radicans* (Culver-downed Cross-foot), leaves glabrous radical ones peduncle tripartite, lobes cut very obtuse upper ones in 3 linear notched segments, calyx glabrous, perianths collected into an oblong spike. *Lightf.* p. 291. *E. B.* t. 385.

Fls. Sides of ditches and pools. Fl. June. 2.

Stems erect, succulent, 1—4 feet high. Lower leaves very broad and glaucous. Flowers extremely small, pale yellow. Heads of perianths oblong.

9. *R. acris* (upright Broad-leaved Cross-foot), cal. spreading, peduncles rounded (not flattened), leaves tripartite their segments acute 3-lobed and cut upper ones linear. *Lightf.* p. 291. *E. B.* t. 385.

Fl. stems; roots 1—2 footed. *R. montana*, Dr. Don, 1853. (var.)

Has Meadows and pastures, very common. *β*. On the Highland mountains, frequent. *Fl. June, July. Y.*

This varies extremely in size and pubescence. Stem erect. There is an alpine variety which I have met with abundantly on the Highland mountains, which I cannot distinguish otherwise from this, than by its smaller sized and taller erect stem. Mr. D. Don finds, I think, the same thing, but there are sometimes two and even three flowers upon the stem, and the cal. is densely villous, which prevents it from being the *E. strictum* Willd., by which name he calls it in his MSS. The plant, however, is globose, and villosa is very hairy. In this particular the *E. maritima* (as well as the some) varies extremely, and appears to me a very doubtful species.

10. *E. repens* (creeping Grassfoot), calyx spreading, horizontalis forward, various creeping, leaves cut into 3 parted leaflets which are 3-lobed or 3-partite and cut. *Lichtf. p. 292. E. B. t. 545.*

Has Pasture lands, too common. *Fl. June—Aug. Y.*

Best distinguished by its creeping nature.

11. *E. bulbosus* (bulbous Grassfoot), calyx reflexed, peduncles forward, stem upright many-flowered, leaves cut into 3 parted leaflets, which are 3-lobed or 3-partite and cut, root bulbous. *Lichtf. p. 292. E. B. t. 545.*

Has Meadows and pastures, frequent. *Fl. May. Y.*

One foot high, hairy. Leaves of the lower leaves tubulate; upper leaves cut into linear segments.

+ + *Stems annual, Pericarps tuberculate or marcescent.*

12. *E. doctus* (pale hairy Grassfoot), cal. reflexed, stem erect many-flowered hairy, leaves 3-lobed or 3-partite, lobes obtuse cut, root fibrous, pericarps winged and tuberculate. *E. B. t. 550.*

Has Road-sides and waste places. Side of a burn between Dalbeth and Tollcross, Glasgow, West. Portland hills, Mr. J. Scott. Apple, Cape Carmichael. Road-side between Leithgow and Pollok, Glasgow. Dick's-burn N. of Glasgow, and corn-fields W. of Perth, Mr. J. Wether. *Fl. June—Oct. Y.*

Variety extremely in size, from 3 inches (when it is the *E. parvulus* of Sm. *Fl. Scot.*) to 18 or 12 inches. Generally very hairy.

13. *E. arvensis* (Cura Grassfoot), cal. spreading, stem erect many-flowered, leaves three-lobed three segments generally again 3-lobed into linear entire or 2-toothed segments, pericarps marcescent. *Lichtf. p. 294. E. B. t. 539.*

Has Corn-fields, but not common. Bogie's hole, Glasgow, West. Corn-field near Strathkerry, Edinb., May. *Fl. June. Y.*

Pericarps very pearly and large. *Flowers* small, pale yellow.—Plant said to be extremely poisonous and injurious to cattle in some countries.

14. TRICHUS

1. *Tr. arvensis* (Globe-flower), leaves of the cal. (var., Sm.)

15. *connata*-*connivent*, petals (nest. Sm.) as long as the stem. *Lepchf.* p. 229. *E. B. & S.* 281.

HAB. Moist meadows and mountains, common. Banks of the Water of Leith, &c., Edinb., *Morph.* Banks of the Clyde at Kilmale, Dalkeith, Berthwell and the Hills, &c., *Alph.* Fl. June, July. *Y.* Leaves cut into 3 deep segments, which are again cut and serrated. Flowers large, handsome, deep yellow. Petals about 25 lines.—This is, according to Light, the *Lindus-Graus* (*Callipe-Drum*) of the Scotch¹.

17. HELLEBORUS.

1. *H. viridis* (green Hellebore), stem few-flowered leafy, leaves digitate, cal. spreading. *Lepchf.* p. 237. *E. B. & S.* 300.

HAB. Pastures and woods. Dungleigh glen, Dr. Forster. Wall-top near Leamside, scarcely indigenous. Mr. Aitken. Fl. April. *Y.* Stem 1 foot high. Leaves large, digitate, upon a broad leafy petiole, upper ones round, segments linear lanceolate, serrated at the extremity. Cal. of 3 large, greenish yellow leaves. Cor. of many minute tubular petals. Styles 3—4.

2. *H. fœtidus* (stinking Hellebore), stem many-flowered leafy, leaves pedate, cal. connato-connivent. *E. B. & S.* 513.

HAB. Pastures and thickets. Banks of the Clyde at Blantyre Ferry, abundantly. Old walls, Burntisland, Glasgow, *Alph.* Between Annanwater and Killybeg, Mr. Chalmers. Fl. April. *Y.*

Two feet or more high, leafy, foetid. Leaves evergreen, pedate, or digitate, with the lateral segments again divided, upon long, slender scotellæ, upper ones or bractæ with a broad sub-nervose-marg. base, uppermost truly ovate-serrulate bractæ. Flowers globose, calyxes tipped with purple tinge. Styles and caps 3—4.

18. CALTHA.

1. *C. palustris* (Marsh Marigold), leaves cordate crenate. *Lepchf.* p. 228. *E. B. & S.* 306.

2. stem creeping, leaves cordate-triangular. *C. rotunda*, *E. B. & S.* 313.

3. leaves cordate nearly entire. *C. montana*, *D. Don*, 1855. *ibid.*

HAB. Marshy places, very common. 3. Seen below the farm-house called the Hilders, near Forfar, G. Don. Fensland hills and Rosslyn woods, Mr. Greville. More common in some spots near Edinb. than at, Mr. Aitken. Marshes near Colliest, Fife, *ibid.*, *Morph.*

" " Soon as the clear goodness of day
Breaks her morning draught of dew,
We'll get to some hauntside to play
And gather flowers to look ye a love;
We'll pop the daisies on the green,
The *Lindus-Graus* from the bog,
Between hands now and then we'll toss,
And sport upon the velvet bog."

Allen Stewart's *Young David and Edinburgh Katy in Light*

γ Springy places in the Grampian mountains, G. Don. 17 May, June. 8.

Plant varying extremely in size and direction. Sometimes 1—1½ feet high, and quite erect. Lower leaves on long footstalks, extremely variable in their shape and in the depth and disposition of the notches. I approached the ones β and γ, and clearly be attributed to a colder climate or poorer soil. The flowers are large, several from a stalk in α, almost solitary in the β and γ.

XIV. DIDYNAMIA.

I. GYMNOSPERMIA*. (Zollinger, Jan.)

* Calyx 2- or 13-lobed, subregular.

11. *LEUCOMYS*. Cal. with 3 angles. Upper lip very hairy above, entire; lower one reflexed, 2-partite. Anthers sprinkled with shining dots.
12. *GRACILIS*. Upper lip of the Cor. bilobed; lower one trifid, with the intermediate lobe emarginate. Anthers approaching each other in pairs and forming a cross.
13. *MINUTA*. Cor. nearly regular, 4-lobed; its broadest lobe notched. Stem, erect, divaricate.
14. *TETRACOMIS*. Upper lip of the Cor. abbreviated, bipartite; lower one 3-lobed, its middle lobe the largest. Stem, projecting through the slit in the upper lip.
15. *ARMA*. Upper lip of the Cor. very minute, notched; lower one 3-lobed, middle lobe the largest, obcordate. Stem, exserted. Anthers reniform, 1-celled.
16. *BRACHYCA*. Cal. teeth acuminate. Upper lip of the Cor. spreading; lower 2-lobed, its tube cylindrical.
17. *LAMINIS*. Cal. teeth acuminate, spreading. Upper lip of the Cor. vaulted, entire; lower 2-lobed, notched on each side at the base. (Anthers large.)
18. *GALANUS*. Cal. teeth acuminate. Upper lip of the Cor. vaulted, notched; lower lip with 3 unequal lobes, having 2 teeth on its upper side.
19. *GALANODORIS*. Cal. teeth unequal, acuminate. Upper lip of the Cor. vaulted, entire; lower one in 3 acute segments.
20. *SPERMIS*. Cal. acuminate. Upper lip of the Cor. vaulted; lower one 3-lobed, with the 2 lateral lobes reflexed. Stem, when old, bent downwards.
21. *NARICA*. Upper lip of the Cor. notched; the lower one 3-

* With 4 perianths, or apparently naked seeds, at the bottom of the cal. Perhaps, placed in this order by Kuntz, 4 have occurred in the following, because it has a distinct perianth including the 4 sepals.

lobed, its middle lobe the largest, crenate; lateral ones very short, reflexed.

11. *BALLOTA*. Cal. with 10 ribs and 5 teeth. Upper lip of the Cor. concave, notched; lower one trifid; middle lobe the largest, emarginate.
12. *MARANTHUM*. Cal. with 10 ribs and 5 or 10 spreading teeth. Upper lip of the Cor. convex, linear, straight; lower one trifid; middle segment the largest, emarginate.

** Calyx two-lipped.

13. *SCUTELLARIA*. Lips of the Cal. closing over the throat; upper lip with a veined process.
16. *THEMIS*. Cal. closed with hairs at the mouth. Cor. shortly 2-lipped; upper one notched; the lower one the largest, sub-emarginate.
18. *FRAXELLA*. Upper lip of the Cal. with 3 very short teeth. Filaments forked at the extremity, one point bearing the anther. Style bifid.
19. *ORGANISM*. Calyx collected, by inflexed bristles, into a spine, quadrangular cone. Upper lip of the Cor. straight, notched; the lower one in 3 nearly equal lobes.
14. *CUSCUTONIA*. Bracteoles (bracteis) of many linear-ovoid-narrowed lobes placed under the cal. Upper lip of the Cor. erect, emarginate; lower one the largest, emarginate.

2. ANGIOSPERMIA.

* Calyx 4-lobed.

23. *LOTUS* &c. Cor. tubular, 2-lipped. A depressed gland at the base of the suture of the germs. Caps. 1-celled.
19. *BACCHARIS*. Cal. mostly coloured. Cor. ringent, with a contracted suture; upper lip concave, longer, entire; lower one in 3 equal reflexed lobes. Caps. ovate, compressed, with 2 cells and many angular seeds.
21. *RAUWOLFIA*. Cal. inflated, 4-toothed. Upper lip of the Cor. compressed; lower one plane, 3-lobed. Caps. of 2 cells, oblate, compressed, and with many imbricated plane seeds.
22. *MELAMPYRUM*. Upper lip of the Cor. compressed, turned back at the margin; lower lip trifid. Caps. oblong, 2-celled, oblique, opening on one side. Cells 1-seeded. Seeds gibbous at the base.
20. *ERYTHRAEA*. Cal. tubular, 4-toothed. Upper lip of the Cor. divided; lower one of 3 notched lobes. Anthers with thin lobes imbricated at the base. Caps. ovate-oblong, 2-celled. Seeds striated.

** Calyx 5-lobed.

26. *LEUCOMILLA*. Cor. shortly campanulate, 5-lobed, equal. Caps. reniform-ovoid, 2-celled.

25. *SCORPIOLEARIA*. Cor. subglobose; limb contracted, shortly 2-lipped, upper lip 2-lobed (with a scale or shallow vein, frequently within), lower 2-lobed. Caps. 2-celled.
27. *DIANTHACEA*. Cal. 5-partite. Cor. campanulate, inflated beneath; limb obliquely 3-lobed, unequal. Caps. ovate, of 2 cells and many seeds.
28. *ACRONASTROUM*. Cal. 5-partite. Cor. perianthate, with a defined prominence or spur at the base. Caps. 2-celled, opening at the extremity with minute valves.
29. *PRICULAREA*. Cal. inflated, (rarely) 3-lobed. Upper lip of the Cor. compressed, arched; lower one plane, 3-lobed. Caps. oblique, compressed, 2-celled. Seeds angular.
30. *LEONURA*. Cal. 5-partite, superior. Cor. campanulate, 5-lobed, equal. Berry dry, 3-celled, only one bearing a single perfect seed. Involucres of 2 leaves just below the perianth.
32. *TRACHEA*. Cor. subobovate, its limb 3-lobed, unequal. Stam. 3-4. Seeds 3-4, included in a thin, prominent pericarp.

*** Cal. of 2 leaves.

31. *ONOSMORHIZA*. Cal. of 2 (generally) lobed, lateral segments. Cor. ringent. Caps. 1-celled, 2-valved, with many seeds. A gland at the base of the perianth beneath.

1. GYMNOSPERMIA.

1. *AUGA*.

* With creeping apices.

1. *A. reptans* (common *Dagile*), glabrous, stem solitary flowering out creeping apices. *Lightf.* p. 302. *E. B. t.* 458.
HAB. Moist pastures and woods, abundant. Fl. May, June. Lf. Leaves broadly ovate, more or less crenate, lower ones and those on the runners tapering into a footstalk. Flowering stems erect, with sessile leaves. Flowers blue, in whorls in the axils of the upper leaves or bractlets, which are often purpleish.

** Without creeping apices.

2. *A. pyramidalis* (*pyramidal* *Dagile*), hairy, whorls crowded into a pyramidal and tetragonal form, radical leaves very large obscure more or less crenate. *Lightf.* p. 302. *E. B. t.* 1270.
HAB. Mountain pastures. On Ben Nevis in Lochaber, and plentifully in the Bann of Killybegs and on the Galt of Cumbria, Dr. Moir. Upon The Aikahie, a hill near Brechin Castle, Dum-fries, Mr. Gibb. Apices, Cape Cornwall. Fl. June. Lf. Four to six inches high. Leaves tapering gradually from the base upward.
3. *A. alpina* (*alpine* *Dagile*), leaves nearly glabrous unequally

Four to five feet high. Flowers purplish red, with a linear subtriangular bract at the base.

3. *M. gentile* (shiny red Miller), flowers whorled, leaves petiolate ovate serrated subglossous, "stem much branched spreading" (Sm.), petioles and lower part of the cal. glabrous tooth hairy. *Lighf.* p. 305. *E. B.* t. 2118.

Hab. Sides of rivers and waste places, but rare, Dr. Parsons. Bank of a rivulet entering into Loch Bann, in Arrian, *Nr. Monagh*. Banks of bluish water, below Carrifore, Dr. Butler. Fl Sept. 7.

"Stems 12—18 inches high, very kindly in consequence of the numerous, opposite, spreading branches. —and this is all the character that has been discovered to distinguish it from *M. rubra*. Surely it is no permanent one! I would not willingly decide till I see plants in a growing state; but in my plants in the herbaceous there is not a shadow of a difference.

4. *M. arvensis* (Corn-silks), flowers whorled, leaves ovate hairy serrated, calyx campanulate and clothed with spreading hairs. *Lighf.* p. 305. *E. B.* t. 2118.

Hab. Corn-hills, not uncommon. Fl Aug, Sept.

The Cal short and campanulate with spreading hairs distinguishes this species. The smell of the plant has been compared to that of the blue part of decayed rhubarb. Flowers cobble purple—I think the *M. agreste* of *E. B.* is not distinct from this.

5. *M. Polagium* (Frang-rapely), flowers whorled, leaves downy ovate obtuse serrate, stem prostrate, flowerstalks slightly, and calyx very pubescent, teeth of the latter fringed. *Lighf.* p. 307. *E. B.* t. 1028.

Hab. Among rubbish thrown out of gardens, and scarcely indigenous, side of springs on the Pentland hills. *Lighf.* Fl Aug, Sept. 11. The smallest of the genus, usually known by its prostrate stems and small frequently recurved leaves, which are both thickly covered with short hairs. Flower pale purplish—Much employed in medicine, and has a powerful smell.

3. GLECHOMA

1. *G. hederacea* (Ground Ivy), leaves reniform cordate. *Lighf.* p. 307. *E. B.* t. 553.

Hab. Under hedges and in waste places, frequent. Fl Apr May 12. Plant much creeping. Leaves petiolate, pubescent. Flowers large, blue, in threes, axillary.

4. LAMNEN

1. *L. officina* (white Dead-Nettle), leaves cordate-serrate deeply serrated petioles, a bath of about 20 flowers. *Lighf.* p. 306. *E. B.* t. 768.

Hab. Borders of fields and waste places, abundant. Fl June, July 7. Flowers large, white, with a linear field at the base of the tube.

2. *L. maculatum* (spotted Dead-Nettle), leaves cordate-serrate ovate-serrate petiolate, whorls of about 10 flowers. *E. B.* t. 2559.

Hab. Woods in Scotland, but rare, G. Dun. Fl. Map.

Flowers large, purple, 10 in a whorl—in other respects very like the preceding, from which however Sir Jas. Smith says it is unquestionably distinct.

3. *L. purpureum* (red Dead-Nettle), leaves cordate obtuse crenate-serrate petiolate the uppermost crowded together, "cor. with the tube bearded within" (Sm.). *Lighf.* p. 309. *E. B.* t. 1033.

Hab. Borders of fields and in hedges, plentiful. Fl. Map.—Sept. ☉.
Leaves, especially the upper ones, with a silky tomentum, and with a purplish tinge on the front ones. Flowers purple.

4. *L. inclum* (cut-leaved Dead-Nettle), leaves broadly cordate obtuse incline-erose petiolate the uppermost crowded, "cor. with the tube glabrous within" (Sm.). *E. B.* t. 1033.

Hab. Commonly with the preceding about Glasgow, Aberk. Fields about Edinburgh, towards Newhaven, &c. &c. Fl. Map. ☉.
I should scarcely think this specifically different from the last, were it not that Smith attributes to the one (*L. purp.*) a cor. bearded within, and to the other (*L. incl.*) a perfectly glabrous one, characters which I have not myself had the opportunity of verifying.

5. *L. empetrifolium* (Heath Dead-Nettle), leaves broadly cordate very obtuse deeply incline-erose petiolate the floral ones sessile embracing the stem. *Lighf.* p. 309. *E. B.* t. 770.

Hab. Dry and sandy fields and gardens, frequent. Fl. March—June. ☉.

Flowers with very slender tubes, less deep rose colour.

7. GALBORNIA.

1. *G. Ledeburii* (red Hemp-Nettle), stem not swollen below the joints, leaves lanceolate subseriate hairy, upper lip of the cor. slightly erose. *E. B.* t. 884.

Hab. Dry limestone rocks in Scotland. A Bruce, Esq. in E. B. Road-side, near Greenland Church, and at Cross-gate hill, Meark. Fl. Sept. Oct. ☉.

Stem 10—12 inches high, with opposite branches. Leaves rather small, petiolate, hairy. Flowers purplish rose colour.

2. *G. Tetralix* (common Hemp-Nettle), stem holed increased below the joints, leaves ovate holed serrated, cor. twice as long as the cal., upper lip nearly straight. *Lighf.* p. 310. *E. B.* t. 307.

Hab. Corn-fields and hedges, frequent. Fl. Aug. ☉.

One foot to two feet high. Flowers white and purplish.

3. *G. nardicolor* (large-flowered Hemp-Nettle), stem holed increased below the joints, leaves ovate holed serrated, cor. three as long as the cal., upper lip inflated. *Lighf.* p. 310 (*G. Tetralix* B.). *E. B.* t. 887.

Hab. Corn-fields about Edinb. and Glasg., very common, Aberk. and Aberk., as well as in other parts of Scotland. Fl. Aug., Sept. ☉.

Much larger than the last in all its parts. Cor. yellow, with purple on the lower lip: very beautiful.

8. GALEOPHOLON.

1. *G. latrum* (yellow Archangel). *Lightf.* p. 310 (Galeopir Golelelele). *E. B. t.* 367.

HAB. Woods and shady places in the Lowlands, but not common; by Haddington, near a garden wall, *Dr. Parsons*. *Fl. May, June.* *M.* One foot or more high. Leaves ovate-narrowly, petiolate, deeply serrated. Flowers whorled, yellow, lower lip orange and spotted.

9. GERONICA.

1. *G. officinalis* (Wood Betony), spikes interrupted, middle segment of the lower lip notched. *Lightf.* p. 311. *E. B. t.* 1142.

HAB. Woods and dry banks, but not common. Bank near Edin. above Queensferry in W. Lothian, *Dr. Sibbald*. Collington and Archibald's woods; south-side between Castle Douglas and Kirkcubright, *Maugh.* Woods, not infrequent about Glasgow, *Maugh.* Near Douglas, *Mr. Stillingham*. *Fl. July, Aug.* *M.*

Stem 1—2 feet high, hairy, with few leaves. Lowermost ones ovate-elliptical, on long footstalks; upper ones oblong, sessile; all serrate-serrate. Spikes of purple flowers, oblong-convex.

10. STACHYS.

1. *S. glandulosa* (Hedge Woadwort), whorls of 6-flowers, leaves cordate-ovate acute petiolate, "stem solid" (*Sm.*). *Lightf.* p. 312. *E. B. t.* 446.

HAB. Woods and shady places. *Fl. July, Aug.* *M.* Two to three feet high, hairy. Leaves truly cordate and spreading from below the middle to a point, in which respect it differs, I think, essentially from the following. Flowers purple; lower lip spotted.

2. *S. anglica* (conjugata Woadwort), whorls of 6-flowers, leaves oblong-cordate acute petiolate, "stem hollow" (*Sm.*). *E. B. t.* 3263.

HAB. Fields and waste places. Hay, Strass, and other Orkney Islands, near Jane Town, Loch Canna, Ross-shire, *Mr. Brewer* and Monk. Near Hadden Hall, Fifehead Hill, *Mr. Weatherhead*. Banks of Loch Dubh, near Inverary, and woods at Inverary, *Maugh.* *Fl. Sept.* *M.*

Hairy, with soft silky hairs, especially about the stem. Appears intermediate between the preceding and the following, but most approaching the latter. Flowers purple.

3. *S. palustris* (Marsh Woadwort), whorls of 6-flowers, leaves broad-lanceolate sessileamplexicaul. *Lightf.* p. 313. *E. B. t.* 1021.

HAB. Rivers, banks and watery places. *Fl. Aug.* *M.*

4. *S. arvensis* (Corn Woadwort), whorls of 6-flowers, stem weak, leaves heart-shaped obtuse sessile slightly hairy, cor. scarcely longer than the cal. *Lightf.* p. 313. *E. B. t.* 1194.

Hab. Corn-fields, frequent, *Lightf. Fl. Aug.* ②.

Distinguished by the small size, weak stems, small and obtuse, serrily petiolated, leaves, and the pale purplish flowers which scarcely exceed the cal. in length.

11. BALLOTA.

1. *B. nigra* (Black Horseweed), leaves ovate undivided serrated, only one dilated upwards subtruncate, the teeth patent. (*Sm.*) *Lightf.* p. 314. *E. B. t.* 46.

Hab. Waste places near towns and villages, but not common. *Dr. Poore* and *Stidh.* About Cuthbert Cocks, Glasgow. *Hook.* About Edinb., and elsewhere, not uncommon. *Mr. Arnott.* *Fl. July, Aug.* ③.

Two to three feet high. Flowers in whorls, purple. Whole herb frid,

12. MARRUBIUM.

1. *M. vulgare* (White Horseweed), stem erect, leaves smuishish ovate toothed, wrinkled, cal. with 10 setaceous hooked teeth. *Lightf.* p. 313. *E. B. t.* 410.

Hab. Waste places and city sides, near towns and villages, but not common, as about Barnhill, *Dr.* *Lightf.* *Fishers* and *Griffin Links*, and at Long Niddry, *Edinb.* *Blanch.* *Fl. Aug.* ④.

One to one foot and a half high, hairy every where; hairy with a white thick pubescence or wooliness. *Fls.* are small, almost white, in expanded whorls. Small aromatic, bitter latex.—The plant has been much employed in medicine for the asthma.

13. LEONURUS.

1. *L. Cordica* (Motherwort), leaves petiolate the lower ones ovate-lanceolate 3-lobed upper ones ovate. *Lightf.* p. 316. *E. B. t.* 386.

Hab. Among rubbish and waste places. In a shady walk behind *Fishers*, and in Collingtree woods, *Edinb.* *Wright.* About Craig-muir castle, Glasgow. *Hook.* *Fl. Aug.* ⑤.

Stem three feet high, branched. Flowers in crowded whorls, white with a reddish tinge; upper lip of the stamens. Cal. with pungent spreading teeth.

14. CLINOPODIUM.

1. *Cl. vulgare* (wild Basil), leaves ovate obscurely serrated, whole hairy, hirsute setaceous, petioles branched. *Lightf.* p. 318. *E. B. t.* 1401.

Hab. Hills and bushy places, not uncommon. *Subsary Crags, Dr.* *Mr. Arnott.* Scaly banks by the Clyde, woods, Hamilton and Kilmuir banks, *Dr.* *Hook.* and *Mr. Murray.* *Fl. Aug.* ⑥.

One to one foot and a half high, with soft hairs. Flowers in crowded whorls, large, purple. Small aromatic.

15. ORIGANUM.

1. *O. vulgare* (wild Basil), spikes somewhat purplish compound-

rate glabrous, bractlets twice longer than the cal., leaves entire entire. *Lighf.* p. 337. *E. B.* t. 1343.

Hab. Dry hilly and bushy places, not uncommon. *Fl.* Aug. 2.

Stems 1 foot high. Flowers purple, and the bractlets tinged with that colour. Fragrant and aromatic.

16 THYMUS.

1. *Th. Serpyllifolium* (wild Thyme), stems branched decumbent, leaves plane ovate above entire periculate more or less ciliated at the base. *Lighf.* p. 338. *E. B.* t. 1344.

Hab. Hills and dry pastures, abundant. *Fl.* July, Aug. 2.

Variable in the hardness of the leaves,—which are sometimes all, or at least, in the size of the plant, and in the want of the foliage, which sometimes approaches to that of lemon. Flowers purple, lower lip with the middle lobe entire.

2. *Th. Arvensis* (Dandel Thyme), flowers on simple stalks about 5 in a whorl, stems ascending branched, leaves oblong shortly periculate acute serrated, cal. glabrous at the base. *Lighf.* p. 339. *E. B.* t. 411.

Hab. Dry mountainous places and gravelly soils, but not common. *Lighf.* *Fl.* Aug. 2.

Stems 6—8 inches long. Leaves sometimes almost entire. Flowers bluish purple. Lower lip of the cor. with the middle-segment emarginate. Sweet fragrant, aromatic.

17 SCUTELLARIA.

1. *S. galericulata* (common Skull-cap), leaves cordate-lanceolate crenate, flowers axillary in pairs. *Lighf.* p. 339. *E. B.* t. 522.

Hab. Banks of rivers and wet marshy places, frequent. *Fl.* July, Aug. 2.

Ten inches to 1 foot high. Flowers rather large, blue, pubescent.

2. *S. minor* (lesser Skull-cap), leaves cordate-ovate entire, flowers axillary in pairs. *Lighf.* p. 339. *E. B.* t. 523.

Hab. Sides of lakes and in boggy places, not uncommon. *Lighf.* Banks of the Clyde at Keshbank, Orr. Berth, Agincourt, Moss Burn. *Fl.* Aug. 2.

Four to six inches high. Leaves leavewith one or two teeth at the base, and subulate; upper ones much narrower, entire. Flowers very pale, reddish, almost white, lower lip spotted.

18 PHUNELLA.

1. *Ph. vulgaris* (Self-heal), leaves petiolate oblong-ovate somewhat toothed at the base. *Lighf.* p. 341. *E. B.* t. 961.

Hab. Moist and barren pastures, frequent. *Fl.* Aug. 2.

Flowers very strongly whorled, so as to form 1 uniform oblong spike, with a pair of leaves at its base, and a pair of broad obcordate bractlets towards each whorl. Upper lip of the cal. truncate, lower 2-toothed. Cor. violet blue, lower lip finely toothed.

2. ANGIOSPERMIA.

19. BARTZIA.

1. *B. alpina* (simple *alpina* Bartia), leaves opposite cordato-ovate obtusely acuminate, flowers subsessile, anthers hairy. *E. B.* t. 331.

HAB. Rocks to the East of Malgobry, Mr. Dickson and Mr. Brown. Ben Lomond, 6. Dec. Fl. June, July. ☉

Six inches high, simple. Upper leaves, or bractes, blue purple. Flowers large, deep purplish blue, pubescent, forming a rather short and loose leafy spike.

2. *B. minor* (yellow *minor* Bartia), leaves lanceolate serrated the upper ones alternate, flowers lateral and distant, anthers hairy. *Lichtf.* p. 321. *E. B.* t. 1045.

HAB. Boggy marshes, but rare, as about Loch Geyl, near Loch Leag, *Lichtf.* Heads of the Clyde at Ardoch Cottage abundantly below the sea at Ardshegale, Ardsheg, Gairloch, below Schenburgh, Dr. Brown. Gairloch history, Mr. M. Stark. In a field opposite the hill of Dumbuck, near Dumbarton, *Mugh.* Fl. Aug. ☉.

Stem erect, simple, 3—10 inches high. *B* leaf plant pubescent and scurfy but dried, drying black. Fls. cordate, yellow, which Mr. Hopkirk remarks have an agreeable, but, weak smell.

3. *B. Odontifera* (red Bartia), leaves lanceolate upper ones alternate, flowers crowded around, anthers subglobose, stem branched. *Lichtf.* p. 324 (*Esperanza Odont*). *E. B.* t. 1415.

HAB. Corn-fields and waste places, by roadsides. Fl. Aug. Sept. ☉.

Six to ten or twelve inches high, hairy. Anthers many, long, erect. Flowers reddish purple, with protruded anthers, facing at their base smaller leaves much smaller than the leaves.

20. KUPHRAZIA.

1. *K. affinis* (Eye-bright), leaves ovate deeply toothed, veins reversed. *Lichtf.* p. 323. *E. B.* t. 1416.

HAB. Pastures, abundant. Fl. July. ☉.

Varying in size from 1 inch, as the Alps, to 6 inches, more or less branched. Flowers axillary, but crowded into a head, white or purple, and marked with deeper lines.

21. RHINANTHUS.

1. *Rh. Crista-Galli* (yellow Rattle), upper lip of the cor. arched, calyx glabrous, leaves lanceolate serrated. *Lichtf.* p. 322. *E. B.* t. 437.

HAB. Meadows and pastures, abundant. Fl. Sept. ☉.

One foot high, glabrous. Stem often spotted with purple. Leaves reflex. Flowers axillary, but somewhat crowded and upbent, yellow. Cal becoming very large after flowering. When the fruit is ripe the seeds rattle in the leafy capsule, and indicate to the Swedish peasantry the source for gathering in their hay. In England, as

Mr. Curtis observes, generally speaking, the hay-making begins when this plant is in full flower.

73. HELANPYRUM.

1. *H. pratense* (common yellow Cow-wheat), flowers axillary around, leaves in distant pairs, corolla 4 times as long as the cal. closed, the lower lip protruded, upper bristly pilose dense. *Lepch.* p. 324. *E. B. t.* 113.

HAB. Groves and thickets, abundant. *Fl* July. ☉.

One or 1 foot and a half high, slender, branched. Leaves lanceolate, acuminate, entire. Flowers rather large, axillary, pale yellow.

2. *H. apiculatum* (small-flowered Cow-wheat), flowers axillary around, leaves in distant pairs, corolla half as long again as the cal. open, the lower lip equal in length to the upper one, bristly entire. *Lepch.* p. 325. *E. B. t.* 504.

HAB. Highland woods, not uncommon. Near Tarnmouth, Mr. Fettes, Fishing, by Loch Tay, Dr. Stuart. Falls of Achers and Mennan, Perthshire; woods of Strick-hill, Kinross-shire, Mung. = Den of Hartip, Mr. Denver and Abell. S. side of Loch Earn, Mr. Stewart. Woods E. of Dunfield, Mr. Murray. *Fl* July. ☉.

One foot high. Distinguished by the entire bristly and much smaller and deep yellow corolla, whose lower lip, divided into 3 nearly equal segments, is almost closely applied to the upper lip or palate and not protruded beyond it.

74. LATEREA.

1. *L. Sparganica* (greater Toothwort), stem simple, flowers pendulous their lower lip 3-lobed. *Lepch.* p. 330. *E. B. t.* 50.

HAB. Woods and shady places, parasitic on the roots of other plants? Maria Loch, near Laurels, Dr. Parsons. Moors in the Sound of Mull, Dr. Stuart. Arntown woods, abundantly, Mr. G. Don. Woods between Auchlandsney and Raudyn, Mr. F. J. Mungton. Banks of the loch at Kevock Mill, about 6 miles from Elgin, Mung. Cur. side, near Glang, Mr. Campbell, and above Cathcart castle, Mr. Russell. *Fl* Apr. May. ☿.

Root (or rather perhaps lower part of the stem) with short branches and covered with indurated scaly scales. Stem succulent, rounded, 6-8 inches high, with a few broadly ovate leaves, the appearance of which may be considered fleshy, but from their soft spring the petioles clustered around flowers, forming altogether a rather long reserve. Cal large, coriaceous, succulent, 4-lobed. The tube the length of the cal., purplish, tubular, two-lipped. Whole plant grey white or pale brown, except the flowers, which have a purplish tinge.—Alked to *discolorata*.

75. PEDICULARIS.

1. *P. palustris* (Marsh Pansywort), stem axillary branched, cal.

* The habitat given of this plant in the list vol. of the *Worcester Transactions*, as Auchlandsney and Raudyn woods, belong to the *H. pratense*, Mr. Mungton.

ovate hairy ribbed overlaid and serrate. *Lichtf.* p. 326. *E. B.* t. 349.

Hab. Wet and marshy pastures, abundant. Fl. July. ♂? (H. Sm.)
Stems 1 foot high, with many small lateral branches. Lower pinnate,
pinnae ovate, almost pinnatifid. Flowers solitary, axillary, rose-coloured. Cal. broadly ovate.

2. *P. applanata* (crenate dwarf *Lamarckia*), stems more from
the base and spreading, cal. oblong irregular glabrous: 5 in-
equally marked segments. *Lichtf.* p. 326. *E. B.* t. 339.

Hab. Moist pastures and heaths, common. Fl. July. ♀.

Stems 3—5 inches high. Lower leaves pinnatifid, the rest pinnate
with deeply serrated pinnae. Flowers large, handsome, rose-coloured.

25. ANTHEMINUM.

* *For squarrel. Leaves broad. Stems long.*

1. *A. Cyatharia* (*Lychnis* *Thunberg*), leaves cordate five-
lobed alternate glabrous, stems procumbent. *E. B.* t. 569.

Hab. Old walls and rocks, but not indigenous. Bothwell castle, *Alph*
Black under *Saxifraga* 4 ridges, Mr. *Arvids*. Wall tops and barren
places near *Edinb.*, Mr. *Arvids*. Fl. summer and autumn. ♀.

Stems very long, filiform, trailing. Leaves often purple beneath, pe-
tinulate. Flowers small, pale blue or purplish. Whole plant gla-
brous.

** *For squarrel. Leaves narrow. Stems erect.*

2. *A. repens* (*Lychnis* *Thunberg*), leaves linear oblance-
olate serrated, stem pinnatifid, cal. glabrous the length of the
spur, cor. striated. *E. B.* t. 1213.

Hab. Rocks along the sea near *Colonsay*, in the parish of *Wicklow*,
Arvids, and also about 4 miles from that place, Mr. *Shandley*.
Rocks of the *Edinb.* *Black* *Black*, Mr. *Arvids*. Fl. July—Sept. ♀.
Stems 1—1½ feet high, slender, branched. Leaves somewhat oblance-
olate, but there soon dying away. Flowers in pinnatifid racemes,
blackish; pedicels often. Mr. *Hapland* has observed the flowers of
this species to assume the *Polygonum* appearance.

3. *A. Lutea* (*Lychnis* *Thunberg*), leaves linear-lanceolate acute-
tended rounded, often terminal, flowers subsessile, cal. gla-
brous shorter than the spur. *Lichtf.* p. 328. *E. B.* t. 638.

Hab. Borders of corn-fields, abundant. For *Polygonum*, rules of *Mel-*
rose, Mr. *Arvids*. Fl. Aug. ♀.

One to two feet high, glaucous. Flowers large, yellow. A remark-
able monstrosity of this is called *Polygonum*, which is spine, and 3,
smaller, imperfect stamens.

4. *A. minus* (*Lychnis* *Thunberg*), leaves linear-lanceolate obtuse
nearly alternate pubescent, stem much branched spreading,
cal. longer than the spur. *E. B.* t. 1214.

Hab. Sandy fields, rare. In the *Parson* globe, Dr. *Brown*. About
Delish and old walls, *Barnclark*, near *Hamilton*, *Alph*. Fl.
June—Aug. ♂.

Stems 4—6 inches high. Flowers solitary, axillary, upon rather long peduncles, small, purplish, with the lower lip yellow.

*** Corolla nearly gulletted at the base

1. *A. majus* (great Soapbrough), leaves lanceolate alternate those of the branches opposite, flowers spiked, segments of the cal. white above. *E. B. t.* 123.

Hab. On old walls, at Hagloch rectory, York.—Introduced *Pl.* July, Aug. 3.

Gut to two feet high. Flowers very large, nearly purplish red, but often varying to white.

26. SCROPHULARIA

1. *S. nodosa* (lumpy-rooted Figwort), leaves cordate acute revolute glabrous, stem with 4 rather obtuse angles. *Lighf.* p. 323. *E. B. t.* 1544.

Hab. Woods and moist ground, not uncommon. *Pl.* July. Y.

Root large, thick and knotty. Stems 2—3 feet high. Flowers in dichotomous axillary and terminal panicles, heart-shaped. Cor. greenish purple, with a scale in the upper lip.

2. *S. aquatica* (Water Figwort), leaves elliptical acute at the base obtuse venous glabrous decurrent, stem winged at the angles. *Lighf.* p. 323. *E. B. t.* 1544.

Hab. Sides of rivulets and other wet places, Dr. Fournier and Sibthorp have about Ghaz, such as Camble wood, Maph. *Pl.* July. Y.

Three to four feet high. Flowers terminal, in dichotomous branches of panicles, without hairs, greenish purple, with a scale in the upper lip.

3. *S. verna* (yellow Figwort), leaves broadly cordate doubly serrated pubescent acute, peduncles axillary solitary dichotomous leafy. *Lighf.* p. 324. *E. B. t.* 1547.

Hab. Road-sides and waste places. Hadden castle, Arundel. *Lighf.* Walls of Hadden castle, Dr. Fisher. Road-side near the fall of Moncrieff, in the greatest abundance, and old walls near Hutton, Edinb. Maph. Fortitude, occasionally; old wall near Balmain castle, also in the village of Moffat, Aberdeen-shire, Mr. Murray. Road-side by the inn at Clasp, Mr. Sower and Maph. *Pl.* May. Y.

Stems 4, regular, sharp-edged. Flowers yellow, corolla very small, almost equally 5-lobed. No scale within the cor.

27. DIGITALIS

1. *D. purpurea* (purple Fox-glove), segments of the cal. white acute, cor. obscure its upper lip undivided, leaves with serrate lower. *Lighf.* p. 341. *E. B. t.* 1237.

Hab. Dry hill, places, abundant. *Pl.* July. Y.

Three to four feet high. Leaves large, veined. Spike very dense, of large drooping purple (sometimes white) flowers, spotted within.—Affords a medicine of great value.

28. VERBENA.

1. *V. officinalis* (common *Verena*), tetradactylon, spikes slender pedicled, leaves much cut, stem erect solitary. *Lightf.* p. 78. *E. B. t.* 787.

HAB. Without the gates of Inverkeithing, Dr. PARSON. Fl. Aug. Y. Stem 1 foot or more high, slender, pedicled above. Leaves deeply cut, ovate or lanceolate, the lower ones subpetiolate. Flowers small, tubular, 2-lid'd, lobes spreading, somewhat equal, purplish, each with a small denture at its base. Pappus soon disappearing, leaving the 4 nearly naked seeds at the bottom of the cal.

29. LINMEA.

1. *L. borealis* (two-flowered *Linnaea*). *E. B. t.* 1227.

HAB. Fir woods in very shady places. Fir wood at Menzies near Aberdeen, Prof. James BENTON. Hill of Rinnoch, near Perth, Messrs. Brown. Coldingham, 3 miles from Aberdeen, and at Kemnay, 14 miles N. W. from Aberdeen, Messrs. Several woods in Aberdeenshire, Mr. CHAPIN. Lately discovered in a fir wood, with *L. Drummondii*, 1 mile to the S. W. of Inverness, by Mr. DUNHORN, and Mr. G. ANDERSON of that town. Only one large patch was found, and that producing no flowers. Fl. May, June. Y.

Stems trailing, filiform, woody, with distant, ovate-remundate, opposite, shortly petiolate, crenate, scarcely hairy leaves. Peduncles erect, 2—4 inches long, with two drooping pedicellate flowers, linear-tubed at the base of the pedicels, and with 2 pair of distant, small bristles upon the pedicels, uppermost pair or involucre glandular, placed just beneath the inferior germes. Cal small. Cor. campanulate, white, with a rose coloured extremity, 2-lid'd. Frond revolv'd by the glandular membrane, a dry leavy, never opening more than 1 inch, according to WILD; but I have never seen the fruit myself.

30. LIMOELLA.

1. *L. aquatica* (Meadow). *Lightf.* p. 391. *E. B. t.* 387.

HAB. Muddy places where water has stood, but not common. Fl. July. Aug. Y.

A minute creeping plant, throwing up clusters of narrow, spatulate, glaucous leaves, 1 or 2 inches long. Flowers very small, solitary, pedicled, pale rose colour. Stam. almost equal, as well as the segments of the cor.

31. GROBANCHE.

1. *G. major* (greater *Broom-Rope*), stem simple, ere, tubular its upper 3p undivided lower one in three nearly equal segments their lateral ones acute the terminal one largest obtuse, stem glabrous, style downy. *Lightf.* p. 332.

HAB. Dry pastures, but rare, upon the Banks of Dunstonsland, Salfield Banks of trees, Lough Almond, Perthshire, Mr. MURRAY. Isle of Skye, Dr. WILSON. Parasitic on the roots of plants, especially the *Diadelphus* ones. Fl. June, July. Y.

One to one foot and a half high, leafless. Whole plant dingy purplish brown, pubescent. Stem swelling at the base, and very woody; scabrous more distant upwards; those become leathery among the flowers, 1 at the base of each. Flowers in a long spike. Cal of two, lateral, lanceolate leaves. Cor. large.

2. *Q. rubra* (red Downy-Rose), stem simple, cor. tubular its upper lip 2-lobed lower one in 3 equal obtuse lobes, stem partially glanduloso-pilose, style glabrous. *E. B. L.* 1766 (ind. fig.). Floet. in *Fl. Lond. Nov. Series*, 4, 103.

His. *Rubra* spica, Staffa, Moore, Turner, Norrie and Fleck. Near Kirkcaldy (E. rose at the hollow, near Southby town, where I was long mistaken for the *O. major*, Mr. Abbot?), Mr. Somerville and Mr. E. F. Monaghan. Fl. July. 3?

Eight to ten inches high. Whole plant a fine purplish red, piloso-glandulose. Cal of 2, entire, lanceolate leaves—2 leaves out the nature of the subwall at Kirkcaldy, but every other staffa at present known for this plant, in Ireland as well as Scotland, is leafless.

XV. TETRADYNAMIA.

I. SILICULOSA¹.

1. *CARYA*. Pouch of 2 single-seeded articulations; upper articulation with an erect sessile seed; the lower one with a pendulous seed (sometimes abortive). *Br.*
2. *CASSIA*. Pouch with the upper articulation subglobose; its seed inverted, fixed to the base of the cell by its (long, curved) pedicel; the lower articulation abortive, resembling a pedicel. *Br.*
3. *CONOSTYCHUS*. Pouch 2-lobed, without valves, wingless; cells 1-seeded. *Corymbus* incumbent, linear. *Br.*

¹ This gentleman informs me that I am mistaken in having given, in *Fl. Lond.*, *Salsbury* as a station for this plant.

² No one who has at all studied the genera of plants needs be told how difficult it was, say, I may say impossible, to distinguish those of this very natural family by the characters that had been given of them prior to the publication of the 11th vol. of *Flora Hibernica*, where Mr. Bacon has given an entirely new arrangement of the family. His genera and characters I have adopted: but I will fear, from the minute part of the Introduction (the catalogue), which is here, with great propriety, brought forward, as offering important distinguishing marks, that the student may shrink from the task of arrangement. The difficulty, however, is more an appearance than a reality. The catalogue being surrounded by no allusion, allows itself to discriminate instantaneously upon breaking the external coat of the seed, and the distinction between *acuminata* and *incumbens* *corymbosa* will be apparent. In the former case the back of one of the calyptrae is applied to the curved seed; in the latter the edges or margins of the calyptrae are applied to it.

4. *Tetradymia*. Pouch compressed, reniform; the valves hood-shaped (often winged), many-toothed. Filaments without teeth distinct. Cal. unequal in its insertion, patent. *Br.*
5. *Tetradymia*. Pouch elongate, the valves hood-shaped; cells 2-toothed. Filaments with a little scale on their inside.
6. *Lepidum*. Pouch with 1-toothed cells, their valves hood-shaped. Petals equal. *Br.*
7. *Cochlearia*. Pouch subovate, many-toothed, their valves winged. Seeds not margined, their cotyledons accumbent. The shorter filaments without teeth. Cal. patent. *Br.*
8. *Sisymbrium*. Pouch oval, pointed (Sift. ovata, *Br.*), many-toothed; valves winged. Cotyledons incumbent, linear, bipinnate (linear). *Br.*
9. *Draba*. Pouch ovate, oval; valves plane, or a little convex; cells many-toothed. Seeds not margined; cotyledons accumbent. Filaments without teeth. *Br.*
10. *Camelina*. Pouch subovate, many-toothed; their valves winged. Cotyledons incumbent. Filaments without teeth. *Br.*

2. SILIQUOSA.

11. *Capsosiphia*. Pod linear, with the margins truncated; valves plane, revolute (often having flaredly), narrower than the deapment. *Br.*
12. *Anaria*. Pod linear, curved with the nearly sessile stigma; valves revolute or curved. Seeds in one row. Cotyledons incumbent. Cal. erect. *Br.*
13. *Turritis*. Pod elongated, 2-edged; valves curved and beaded. Seeds in two rows. Cotyledons accumbent. *Br.*
14. *Berberis*. Pod 4-edged. Cotyledons accumbent. Seeds in one row. Cal. erect. Small glands placed between the shorter filaments. *Br.*
15. *Nasturtium*. Pod rounded (sometimes short); valves convex, revolute, not carinated. Cotyledons accumbent. Cal. patent. *Br.*
16. *Sisymbrium*. Pod rounded or angular. Cotyledons incumbent (sometimes oblique), plane. Cal. patent (sometimes rarely erect). *Br.*
17. *Ervum*. Pod 4-sided. Seeds not margined. Cotyledons incumbent. Stigma capitate, sometimes notched, with the lobes patent. Cal. closed. *Br.*
18. *Ceratium*. Pod compressed or two-edged. Cotyledons accumbent. Cal. closed; opposite leaflets sessile at the base. Stigma placed upon a style, two-lobed, with the lobes patent or capitate. *Br.*

* Some cotyledons in this class are tripartite, as in *Leptanthus arboreus*, and the grass *Allophila*, according to *Br.*

19. *BRASSICA*. Pod 4-sided or two-edged. Siliqua nearly sessile, with the lobes confluent. Cotyledons incumbent; plane. Cal. closed. *Fr.*
20. *BRASSICA*. Pod 2-valved (with an oblique or 1-sided beak). Cotyledons conduplicate. Cal. closed. *Fr.*
21. *SINAPIS*. Pod 2-valved (sometimes of 2 articulations, of which the upper one is valvate). Cotyledons conduplicate. Cal. patent. *Fr.*
22. *RAPHANUS*. Pod valvate (rarely, *Sin.*). Cotyledons conduplicate. Cal. closed. *Fr.*

I. SILICULOSA.

1. CAMEL.

1. *C. maritima* (See *Rochb.*), undulations of the pouch two-edged the upper one sagitate, leaves pinnatifid sub-ovate *Sealy*. *Fr. Lightf.* p. 383, and *E. B. t.* 231 (*Stenol Collib.*). *Flas.* Sea-coast in sandy places, not uncommon. With seeds, *Fr.*, *Lightf.* E coast from Aberdeen to Farnborough, *Mr. Murray*. *Fl. June, July* ☉.

Plant bushy, branches very crooked, succulent. Flowers, as in all of this class, corymbose; the corolla in fruit lengthening into numerous, purplish. Pouch thick, *Sealy*, in length somewhat woody.

2. CHAMBE.

1. *C. maritima* (See *Kal.*), the four longer filaments forked, pouch papillose, leaves roundish sinuated waved rounded glaucous and as well as the stem glaucous. *Fr. Lightf.* p. 384. *E. B. t.* 324.

Flas. Sea-coast in sandy or stony soils, but not common. Near Farnborough, Berwickshire, *Lightf.* Isle of Isle, *Dr. Walker*. *Fl. June, 8.*

Root thick, *Sealy*. Leaves large. Flowers white. Well known in a cultivated state; but rare, in Scotland, wild.

3. CORONOPUS.

1. *C. Basilii* (*Savine's Crest*), pouch undivided crested with little sharp points. *Fr. Lightf.* p. 343 (*Cochlearia Coronopus*). *E. B. t.* 1660.

Flas. Moist, clayey, exposed situations by road-sides, but not common, *Edinb.* Road-side W. of Tullycree, *Edinb.*, at Burnside, and at Broom Harbour, *Marsh* Musselburgh, *Mr. Arnott*. *Fl. Aug.* ☉.

A much branched, spreading weed. Leaves bipinnate, the segments linear. Flowers very small, white, in lateral solitary corymbs. Pouch large in proportion to the flower, externally crested.

4. THLASPI.

1. *Th. arvense* (smooth *Blackburn's Mustard*, or *Penny-Cress*),

poach orbicular, its wings dilated longitudinally, veins concentrically striated, leaves oblong sagittate toothed glaucous. *Dr. Lightf. p. 340. E. B. t. 1453.*

Hab. Fields and road-sides, but not common. Near Linton, in Tweed-side, *Rev. Dr. Sargent* at Kirkcubright. Corn-fields about Edinb., *Miss Figgot* where and Burntisland, near Edinb., *Mr. Stewart* Queen's-bury, *Mr. D. Stewart*. *Fl. June, July.* ☉

One foot high, branched above. Flowers extremely small, white. Petals very large, with broad wings.

B. Th. Baryx-Parscel (common *Shepherd's Parsel*), poach obcordate without wings, radical leaves pinnatifid. *Dr. Lightf. p. 342. E. B. t. 1452.*

Hab. Corn-fields and waste places, every where, most abundant. *Fl. the whole summer.* ☉

Very variable in size and in the form of the leaves, lower ones more or less pinnatifid, upper ones lanceolate-sagittate, all generally toothed, and rough with hairs. Flowers small. Well distinguished by the obcordate wingless poach.

4. TRINDALIA

1. T. nudicaulis (naked-stalked *Trindalia*). *Dr. Lightf. p. 346, and E. B. t. 327 (Naris nudicaulis).*

Hab. Sandy and gravelly banks, but rare, *Schreid.* Ugha near New-Pass in a field belonging to Lord Advocate Montgomery. *Dr. Hope.* Sandy fields near Telferous, Glasgow, abundantly, *High.* Lanks near Ayr, *Miss Figgot* Sandy hills at Peterhead, and *Archibaldson*, Perthshire, *Mr. Murray.* *Fl. May, June.* ☉

Leaves almost entirely naked, linear-pinnatifid. Stems 2—4 inches high, with sometimes 1—2 small, entire, or not known. Flowers white, two of the petals longer than the other two.*

5. LEPIDIUM

1. L. latifolium (broad-leaved *Pepperwort*), leaves lanceolate undivided serrated or entire, poach oval entire. *Dr. Lightf. p. 338. E. B. t. 152.*

Hab. Near the sea-coast. By the castle of Wroon, in Fife-shire, *Dr. Lightf.* Upon the rock on which *Bathurst-castle* is built, *Dr. Watson.* *Fl. July.* ☉

Two to three foot high, branched, erect. Flowers numerous, small, in many terminal clusters.

2. L. rudicak (narrow-leaved *Pepperwort*), leaves diaphanous spinulose, radical leaves pinnatifid those of the branches 3-near entire, poach exaristate patent. *Dr. Lightf. p. 340. E. B. t. 155.*

*I find there is some mistake in the information obtained by *Lightfoot*, that the flowers were given in fields between Hamilton and Glasgow. *Mr. Hope* observes that it is not to be found there, and in England it is confined to the southern parts.

HAB. Waste places near the sea, and among rubbish. *Fl. June*. \odot .
Stems sometimes a foot high, much branched. Seed-vessels immovable.

3. *L. campestris* (*Soury Field Peppercorn*), pouch ovate triangular winged rough with minute scales, style scarcely longer than the notch, calyx leaves sagittate toothed. *Lightf.* p. 241, and *E. B. t.* 1803 (*Thlaspi camp.*).

HAB. Corn-fields and dry gravelly soils, but not common. *Dr. Pursh.* Longridge, Glasg. *Dr. Brown.* Abundantly on the road near Drumpolter, Glasg. *Light.* Common about Dundee, *Mr. Brown.* *Fl. July*. \odot

Ten to twelve inches high. Stems solitary, branched above. Lower leaves almost spatulate, all slightly pubescent, as well as the reverse and petioles.

4. *L. arvensis* (*Soury Field Peppercorn*), pouch ovate triangular winged glabrous, style nearly half as long as the pouch, calyx leaves sagittate toothed. *E. B. t.* 1803 (*Thlaspi arvensis*).

HAB. Margins of fields and hedges. Near Blantyre Framp, *Dr. Brown.* *Fl. June*. \mathcal{M} . (*f. Sept.*)

Six to eight inches high. Stems many from one root. Much resembling the last, but winter with the more abundant pubescence. Stems and leaves hairy. Pod with, caudately, a much longer style, and in all my specimens not only free from scales, but from hairs too.

7. COCHLEARIA.

1. *C. officinalis* (*common Scoury-grass*), pouch globose, radical leaves petiolate cordate-serrulate entire or serrated, cauline ones sessile oblong serrated. *Lightf.* p. 242, and p. 244 (*C. granulosa*). *E. B. t.* 251, and t. 2403 (*C. granulosa*).

HAB. Rocks and muddy places by the sea-coast, as well as upon the elevated mountains. *Fl. May*. \odot .

Varying in height from six inches to a foot or more, much branched, especially the base. Leaves succulent, more or less entire, those of the stem semispherical with their generally toothed base. Flowers white.—I can see no difference whatever in the *C. granulosa*; for the serrated and toothed or entire leaves are extremely variable marks, and such as no reliance can be placed upon.

2. *C. anglica* (*English Scoury-grass*), pouch elliptical, radical leaves petiolate cordate entire, cauline ones sessile mostly oblong more or less toothed near the base. *Lightf.* p. 244. *E. B. t.* 252.

HAB. Rocks of Inch Columbk (Inchcolm), *Sleight.* *Fl. May*. \odot .

Smaller than the last, and larger than the following, to which I think it approaches too near. In some of the lower cauline leaves the true teeth near the base form a complete delta, and the pouch is very slender.

2. *C. densa* (*Danish Scumy-grass*), pedicels acute-angled, leaves all petiolate distich, *Lightf.* p. 343. *E. B. t.* 607.

Hab. Rocks and sandy or stony places on the sea-coast. Burrellsland and Garscadden about on the Firth of Forth, Mung. Both on the E. and W. coast, smelt at Peterhead, in Arbro, &c., Mr Murray. *Fl.* May. ☉

Stems 4—5 inches long, branched. Leaves sometimes lobed and dissected, sometimes nearly entire. Pedicels reticulate, at least in a dry state.

4. *C. Arvensis* (*Florus-rudely*), pedicels oblong, stipules dilated nearly ovate, radical leaves oblong (as long as petiole) crenate, cauline very elongate lanceolate serrate on entire. *Lightf.* p. 1135. *E. B. t.* 7223.

Hab. Mentioned as a native by Sibbald. Field near Craigrook, Mung. Waste ground about Glasgow, occasionally, Mung. Dackington Loch, Mr Stewart. *Fl.* May. ☉

Stems long and running deep into the ground, well known at our tables, and admired for its pungent flavour. Stems 1½ foot to 2 feet high, branched, striated. Leaves much spread. Flowers white. Fruit seldom perfected, compressed.

8. SUTCLARIA

1. *S. aquatica* (*Ashland*), *Lightf.* p. 317. *E. B. t.* 722.

Hab. Muggin of the Highland lakes, under the water, in a gravelly or sandy bottom, as in Loch Tay, &c., Dr. Stewart. Loch of Linn, Rev. Mr McRitchie. Loch Lomond, by Jack Tannahill, Mr Brown and Rank. *Fl.* July. ☉

Leaves few, radical, oval-shaped, an inch or more long, recurved at the extremity. Stems 1—2 inches high. Flowers small, white, said to produce seed to perfect the fruit entirely under water.

9. DRABA

1. *Dr. arvensis* (*Common Field-flower-grass*), scapes naked, petals bipartite, leaves lanceolate somewhat cut hairy. Br. *Lightf.* p. 337. *E. B. t.* 146.

Hab. Walls, rocks, and dry hills. *Fl.* March—May. ☉

Two to 4 inches high. Pedicels erect. Flowers white. Most of the leaves more or less forked, or ciliated, as they are on all the British species of *Draba*.

2. *Dr. repens* (*Rock Field-flower-grass*), scapes naked or with one leaf, petals undivided, pedicels lanceolate pubescent, leaves plane lanceolate hairy. Br. *E. B. t.* 1335 (*D. hirta*, but not of Linn. or *Fl. Den.* according to Brown).

Hab. Not of Scotland, Brown is Mist. Rev. Ben Lawson, Mr Dickson. *Fl.* July. ☉

I am not acquainted with this species. Smith says that it is from one inch to three inches high, round, more or less hairy, naked, or with an occasional leaf at the bottom, that all the leaves are quite simple, in which particular it differs from *Dr. hirta* of Jacq., and that the

poach is clothed with minute, forked, divergenced white hairs. It cannot therefore be the same as the following*.

3. *Dr. stricta* (sharp siliqua *Pharicou-grass*), scape generally with one or two acute dentate or entire leaves, pedicels unilobed, poach oblong and as well as the pedicels glabrous, leaves lanceolate plane hairy and stellate pubescent.
- β. alpicola*, scape upright, pedicels shorter, leaves with stellated hairs. *Wahl. Lapp. p. 175, t. 11, f. 1.*, *Dr. stricta*, *Jery, Astr. i. 432.*

Has. *β.* Rocks at the summit of Corn-grass, Hook. *R. July.* 2. I have specimens from Wahlberg himself of this species which positively accord with my plants gathered on Corn-grass, and the figure and description leave me no reason to doubt that the *Draca stricta* in *R. Jery* is also the same as mine. The *α.* Wahlberg tells us, is the true form of *Lapp.* and has very few stellated hairs on the leaves. *β.* *hastata* being of a more rigid habit and more lamina growth (stem 2—4 inches high), has the foliage rather thickly covered with stony pubescence, besides having simple hairs, especially at the margin. The scape is stellato-pubescent too, but the pedicels as well as the poaches are glabrous, in which particular, as well as in the less dense leaves and the constant presence on them of simple hairs, it differs principally from the *Draca nemoralis* of Wahlberg, the *β.* form of *R. Don*. May not these and even the *Dr. repens* above described, be mere varieties of one species?

4. *Dr. incana* (revetted padded *Pharicou-grass*), rather leaves numerous imbricate dentate hairy with stony pubescence, poach oblong somewhat twisted. *Lightf. p. 335. E. B. i. 366* (stud. fig. from a cultivated specimen).

Has. Near the rocky summits of the Highland mountains, not infrequent. In *Isle, Skye, Assynt, &c.* *Lightf. Ben Lavin, Moun. Crag-on-rainach, Dr. Walker.* Grows on the E. coast of Sutherland, near Wills-house Inn, *My. Skerrow and Hook. R. June, July.* *β.*

Four to six or eight inches high, sometimes throwing out lateral branches, stem, very leafy. Lower leaves mostly entire, upper ones deeply toothed, almost cut, acute. Poaches erect, glabrous in my Scotch and Irish specimens, pubescent in some from Switzerland, as they are also described to be consistently in England. Small starved roots of this plant come very near the *Dr. stricta*.

5. *Dr. nemoralis* (*Sperdinell-leaved Pharicou-grass*), stem branched, leaves acute obtuse angulo-acute dentate, poach pilose glabrous. *R. E. B. i. 912.*

* I have, since the above description was written, seen Mr. Don's specimens of the *Four Leaved plant*. It has stellated hairs mixed with the simple, and the poaches are in some instances, especially parvifolia, pubescent, so that I have, more than ever, reason to believe the *Dr. repens* of this is but a slight race of the *Dr. stricta*.

Has Reported to be found in Scotland, *Lepidif.* About Forfar, *Fl. Dan.* Field behind the Bot. Garden at Edinb. and Bellinac near the same city, *G. Flou.* Scarcely effigines. *Fl. May.* ☉
Six inches to 1 foot high. Leaves scabrous. Petals elliptical.

10. CAMELINA.

1. *C. sativa* (refracted *Camelina*, or *Gold of Pleasure*), pouch obscurely emarginated, stigma simple, leaves lanceolate serrulate. *Dr. Lightf.* p. 398 (*Hesperium sat.*). *E. B.* t. 123-4 (*Hesperium sat.*).

Has Fields Among Flax, but probably imported, *Lepidif.* Near Inverkeithing, Mr. J. Stewart, Apple, Capt. Carmichael. Field of flax, S. side of Franchfield Loch, Glasgow, *Wepk.* *Fl. June*, July. ☉
Twelve three foot high, pinnated above. Flowers small, yellow. Pinnules very large, on long petioles.

2. SILIQUOSA.

11. CARDAMINE (Dentaria and Cardamine, Sm.)

* Leaves pinnated.

1. *C. bulbifera* (*bulbiferous Toothwort*), stem quite simple, inferior leaves pinnated, superior ones undivided. *Dr. E. B.* t. 323 (*Dentaria bulbifera*).

Has Near Dugdale, Mr. Shillingstone. *Fl. Apr. May.* ☉
Just emerging, with thick fleshy scales or tooth-like processes. Stems 1—1½ feet high. Leaves lanceolate, in the upper leaves themselves, serrated, somewhat fleshy, often bearing a small bulb in their axils. Flowers rather large, purple.

2. *C. amara* (*flower Lady's Smack*), leaves pinnated, radical leaflets reniform, cauline ones dentate-serrulate, style oblique, stigma acute, stem rooting at the base. *Lepidif.* p. 350. *E. B.* t. 1252.

Has Wet meadows, near rivulets. By the new mill on the water of Loth, &c., *Lepidif.* Near Bell's mill and Kerpock Mill, Edinb., Rough Banks of rivers, frequent about Glasgow, *Wepk.* Dr. Brown, Mr. Murray, &c. *Fl. April—June.* ☉

One foot high. Well distinguished from the following by the broad serrulate-dentate leaflets, in the upper leaves, and the white flowers which are larger and have purple anthers. The leaflets of the radical leaves are rounded and entire.

3. *C. pratensis* (*meadow Meadow Lady's Smack*), leaves pinnate, radical leaflets reniform dentate, cauline ones lanceolate nearly entire, style straight, stigma capitate. *Lepidif.* p. 349. *E. B.* t. 776.

Has Moist meadows, abundant. *Fl. May.* ☉
One foot to two foot high. Flowers large, black-coloured, sometimes double. This can be known to propagate itself by the leaflets.

4. *C. impatiens* (*narrow-leaved Lady's Smack*), leaves pinnate,

bracts lanceolate sometimes cut or ciliate, stipules elliptic, petiole flexuous or none. *Br. Lightf. p. 343. E. B. t. 30.*

Hab. Foot of mountains and in shady places, but more, *Lightf.* Rocks on the banks of the river above the falls of the Clyde, *High. Fl. May, June.* ☉

One or one foot and a half high, well distinguished by the stipules at the base of each leaf. Flowers minute, white. It owes its specific name to the elastic force of the valves of the numerous pods, which thus burst and discharge the seeds.

3. *C. hirsuta* (*hairy Lady's Smock*), leaves all pinnated and without stipules, bracts petiolate radical ones roundish, stem (4—6) equal in length to the petals, stigma nearly sessile. *Br. Lightf. p. 343, and p. 1104 (C. parviflora). E. B. t. 459.*

Hab. Moist shady places, and among rocks and by the sides of rivulets, plentiful. *Fl. May, June.* ☉

Varying much in luxuriance according to soil and situation. From 4 inches to 1 foot or more high, more or less branched and somewhat, sometimes rising (the *C. hirsuta* and *Wick*, and *High.*) Leaflets more or less angled or toothed, upper ones acute: varying also extremely in the degree of hairiness, sometimes being quite smooth. Flowers small, white.

44. *Leaves undivided.*

6. *C. pedicellata* (*Daisy-leaved Lady's Smock*), leaves simple acute entire upon rather long footstalks. *E. B. t. 2355.*

Hab. Cultivated in Scotland by Mr. Miller, formerly curator of the Oxford Bot. Garden, *E. Bot. Fl. Aug. M.*

One inch to 3 inches high. Leaves, even the radical ones, on rather long footstalks. Flowers few, small, white. Very near *C. alba*.

12. *ARABIS.*

1. *A. alpina* (*short-petalled Rock-Cress*), radical leaves divaricate lyrate lengthened below into footstalks, cauline ones mostly undivided glaucous, fruit-bearing peduncles spreading half as long as the pods. *Br. Lightf. p. 347. t. 15 (Cardamine petraea). E. B. t. 459 (Cardamine hirsutula).*

Hab. Moist rocks by the sides of rivulets, near the summits of the Highland mountains, as on Craig-Chaillach, on Breadalban, Bala-rul, in the lake of Bann, abundantly; and Ben-na-Cullach, in Strath in the Isle of Skye, Banks of the Dee, Aberdeenshire, *Anderson and Lightf. Ben More, in Mull, High. Fl. July. M.*

Three to six inches high, slender, glaucous. Radical leaves numerous: cauline ones few, toothed or entire. Flowers small, whitish, or with a purplish tinge.

2. *A. hibernica* (*common Wall-Cress*), leaves subdentate pinnate, radical ones subpetiolate oblong, stem, as long as the petals, stem branched, pods ascending. *Lightf. p. 328. E. B. t. 569.*

Hab. Walls, dry banks, and grassy soils, common. *Fl. Apr. May.* ☉

Six to ten inches long, slender, with few leaves, and those mostly radical.

3. *A. ciliata* (alpine Tower-Mustard) leaves subulate and glaucous ciliated, radical ones nearly sessile obtuse, cauline ones semicordate, stem simple. *Br.* *E. B.* i. 1748 (*Turritis alpina*).

Hab. Rocks near Loch Lom, in Glen Elg, C. Den. *Fl.* July. *g.*
Four to six inches high. Radical leaves several, oval or oblong-oblong, obtuse. Cauline roots small. Pods nearly erect.

4. *A. strata* (airy Tower-Mustard), leaves all rigid dentate, cauline ones semicordate, pods upright. *Br.* *Lichtf.* p. 353, and *E. B.* i. 167 (*Turritis strata*).

Hab. Dry rocks, frequent, as upon the rocks in the King's park, Edinburgh, *Lichtf.* Hadden How and Pentlands hills, *Wright* *Illustration of Carlisle Crags, Gleng.* plentiful, *Hook.* *Fl.* June. *g.* (*N.*, *Sm.*)

One foot or more high, very straight, stiff. Stem rough with spreading hairs, with many leaves. Flowers small, white. Pods nearly erect.

5. *A. Thellusii* (Tower Wall-Cress), leaves semicordate, pods recurved flat and linear with the margins incised, bristly filicoseous. *E. B.* i. 178.

Hab. Old walls, very rare. Coast of Orkney, *Mr. Asch.* *Fl.* May. *g.*
One foot or more high. Leaves many upon the stem, oblong, toothed, a little rough, with short pubescence, especially the lowermost, spatulate ones large, but gradually smaller upwards, and the uppermost ones become linear, each bearing in its axil a single flower-stalk. Flowers small, yellowish white. Pods very long, bent backward when ripe.

13. TURRITIS.

1. *T. glabra* (Jung-poiled Tower-Mustard) radical leaves dentate hairy, cauline ones amplexicaul entire glaucous. *E. B.* i. 777.

Hab. Dry pastures, rare. In the wood opposite the inn at Bowling Hay, *springhill*, *Hook.* *Fl.* May, June. *g.*

One to two feet high. Leaves oblong-linear, glaucous, radical ones toothed or serrated at the base, cauline ones sagittate. Flowers yellowish white. Pods long, erect. Whole plant very erect, and straight.

14. BARBAREA.

1. *B. vulgaris* (Barbar-Mustard), lower leaves lyrate the terminal lobes rounded the superior ones obovate toothed. *Lichtf.* p. 353, and *E. B.* i. 443 (*Erpidium Barbarea*).

Hab. Banks of ditches and rivers, but not very common. By the side of the water of Leith, *Dr. Forsk.* Very frequent in hedges and waste ground, and banks of rivers, about Gleng. *Hook.* *Fl.* May, Aug. *g.*

One to one foot and a half high. Stem, furrowed, and branched, glabrous. Flowers yellow.

2. *D. prostrata* (early Winter-Cress), lower leaves lyrate upper ones pinnatifid their segments linear oblong and entire. *E. & A.* 1129 (*Erugula prostrata*).

Hab. St. Bernard's well, Edinburgh, Mr. Arnott. *Fl. summer months &c.* One to two feet high, slenderer than the last in every part. Flowers very small, yellow. Pods longer.

13. NASTURTIUM.

1. *N. officinale* (Water-Cress), leaves pinnate, leaflets acute sub-ovate slightly-dentate. *Lightf.* p. 359. *E. & A.* 555 (*Sisymbrium Nasturtium*).

Hab. Brooks and rivulets, frequent. *Fl.* July. 2.

A well known aquatic, and an excellent salad. Lower leaves large, of 5—7 distinct leaflets, the terminal one the largest and roundest; radical leaflets subovate, all rather succulent, glabrous, more or less wavy or toothed. Flowers white. Pods about 1 inch long, patent.

2. *N. aquaticum* (creeping Nasturtium), leaves pinnate, leaflets lanceolate broader than those on the uppermost leaves nearly entire. *Lightf.* p. 361, and *E. & A.* 555 (*Sisymbrium aqu.*).

Hab. Water-sides and waste places, but not common. Mr. Perreux and Sibbald. In several wet places on the side of the waters of Ra, below Wintonhall house, *Lightf.* *Fl.* July, Aug. 2.

Stems much creeping. Stem 1 foot high, regular, branched. Flowers yellow. Pods much longer than the cal. Pods short, patent or curved a little upwards.

3. *N. terrestris* (Marsh Nasturtium), leaves lyrate-pinnatifid unequally toothed glabrous, root simply fibrous, petals not longer than the cal. *Lightf.* p. 362 (*Sisymbrium amphibium a.*). *E. & A.* 1247 (*Sisymbrium terrestris*).

Hab. Watery places. Fagget Wharf, Edinburgh. G. Don. Edge of Kinghorn Loch, Mr. P. Neill. Banks of Finsfield Loch, Glasgow. N. bank of Loch Lomond, Mr. Arnott. Appin, Capt. Carmichael. *Fl.* June, Sept. 3.

One foot high, branched. Distinguished readily from the last by its pinnatifid, not pinnate, leaves, the minute (yellow) petals and the more torpid pods.

4. *N. amphibium* (amphibious Nasturtium), leaves oblong pinnatifid or unnoted, root simply fibrous, petals longer than the cal. *Lightf.* p. 362 (*Sisymbrium amphibium b.*). *E. & A.* 1840 (*Sisymbrium amphibium*).

Hab. Watery places, occasionally. Dullington Loch, Mr. Fother. Banks of the Clyde, frequent; in the marsh beyond Fossil, and Hardown Loch, near the house, Glasgow. 1841.

Two to three feet high, branched. If any leaves grow under water, they are deeply pinnatifid, deeply serrated otherwise. Flowers yellow. Pods short, small, but torpid, verticillate-patent.

16. SYMBIUM.

1. *S. affine* (common Hedge-Master), pods subulate pubescent close joined to the main stalk, leaves renunciate hairy, stem hispid. *Lichtf.* p. 354, and *E. B.* t. 735 (*Syrphium aff.*). Has Waste places and by-way-sides, plentiful. Fl. June, July ☉. One to two feet high, branched. The deep red cal. or striated lobes are not always sufficiently decurved to be called recurved, erect, and lobes very large, rounded in the lower leaves, oblong in the upper ones. Flowers very small, pale yellow.
 2. *S. Sophia* (Hills-wort), leaves doubly pinnate a little hairy, pinnules linear terminal one the longest, petals shorter than the cal. *Lichtf.* p. 354. *E. B.* t. 733.
- Has Waste places, among rocks, common. Fl. Aug ☉. Two feet high, branched. Pods linear, slender, erect, but not appressed, the flattened being a little patent.

17. ERYTHIMUM.

1. *E. christifolius* (Trench Hedge-Master), leaves lanceolate entire or slightly toothed with stellate-tripartite hairs, pods nearly erect their peduncles spreading, stigma undivided nearly white. *Dr. Lichtf.* p. 354. *E. B.* t. 742.
- Has Corn-fields, but not common. Abundant. At the head of Loch na Gual, in Mull, Dr. Fischer. Fl. July, Aug ☉. One foot to two feet high, branched. Flowers small, yellow.
 2. *E. alba* (Garlick-Hedge-Master), leaves heart-shaped petioles dentate-crenate. *Lichtf.* p. 354. *E. B.* t. 739.

Has Hedge-banks and waste places. Fl. May, June ☉. Two to three feet high, branched. Leaves large, round, well known for their garlic-like smell. Flowers white. Pods erect-patent.

18. CHEIRANTHUS.

1. *Ch. frutescens* (wild White-flower), leaves lanceolate acute hairy beneath, pubescence all simple and close-pressed, stem sometimes shrubby, branches sigmoid. *Sw. Lichtf.* p. 357 (*Ch. Cheir*). *E. B.* t. 1834.
- Has Old walls and walls, frequent. Fl. May, M. One foot high, bushy. Leaves yellow, somewhat rigid, in which particular the principal distinction exists between it and *Ch. Chama*. Are they truly distinct?

19. HESPERIS.

1. *H. matronalis* (Dane's Violet), stem erect, leaves ovate-lanceolate toothed, limb of the petals obovate, pods erect intravaginate their margins simple (not lacinated). *E. B.* t. 721 (*H. danica*).
- Has Rocks and bushy places. Side of a rivulet near Glen Corie, *Lichtf.* Fields near Hibernia, by Glasgow, amazingly indigenous, *Boyd*. Collington and Auchinleck woods, Mough. Dark below

Arthur's Seat, *Br. Arden*, Water of Leith, *St. D. Street*. *Fl. May, June.* *d. or M.*

One foot to two feet high, simple or a little branched, pubescent. Flowers very pale purplish, white-crested, especially towards evening. Cal. leaves coloring by their upper part. (5m.)

20. BRASSICA

1. *Br. Napar* (wild *Blancs* or *Cole-rind*), root caudexcent fusiform, leaves smooth, upper ones cordate-lanceolate amplexant, lower ones lyrate toothed. *Lepidif.* p. 318. *E. B.* t. 2140.

Hab. Carn-felds, frequent, and on banks. Rarities behind Edinburgh. *Fl. June.* *d.*

One foot to two feet high. Lobes of the lower leaves crenate; upper ones erect, subglabrous. Petals yellow, rather small. Peds torulose.—Calculated for the oil produced by the seeds; and the seeds, by pressure, are forced into cakes, which, after the extraction of the oil, are useful for manure as well as for fattening cattle.

2. *Br. Rapa* (Turnep), root caudexcent orbicular depressed fleshy, radical leaves lyrate suberosus those of the stem nearly entire smooth. *E. B.* t. 2176.

Hab. Borders of fields. *Fl. Apr., May.* *d.*

Varying exceedingly in height, according to the soil. Upper leaves amplexant, crenate-crenulate, subglabrous; all more or less toothed. Flowers yellow, rather large.

3. *Br. oleracea* (Caul Cabbage), root caudexcent rounded fleshy, all the leaves glabrous glaucous waved and lobed. *E. B.* t. 2187.

Hab. Frequently by the sea-side, backlands, &c. *Fl. June.* Each Cabb., *May 6.* *Fl. May, June.* *d.*

Various in height, 1 foot to 2 feet. Leaves thick, suberosus, the uppermost undivided but toothed. Flowers large, yellow.—The origin of all our garden Cabbages.

4. *Br. Minervia* (Joke of Miss Cabbage), leaves pinnatifid, stem rarely leafless glabrous, pedic smooth, brach monospermeous. *Br. Lepidif.* p. 323. t. 15, and *E. B.* t. 2422 (*Synedrium Min.*).

Hab. Sea-shores in many places. Bute, S of Montserrat; on the W. side of Arisa, and at Lamlash Bay, in Galloway on the western side, *Lepidif.* Shows of the Solway Firth, abundant, through Mouth of the Clyde, about Largo, and on the coast thence to Arr, also opposite the shores of Bute and Arisa, frequent, *St. Marzap.*—Common, I believe, in the western shires. *Fl. June, July.* *M.* Eight to ten inches high, slightly simple. Segments of the leaves linear, more or less toothed. Flowers often large, yellow.

5. *Br. campestris* (Field Cabbage), root and stem slender, leaves cordate acuminate amplexant lower ones lyrate dentate sub-lanceol. *E. B.* t. 2234.

Hab. Carn-felds in Bute and Arisa, *Lepidif.* By the side of the

road leading from Laleh to Queensberry, near Banaholm, and fields near Fintar, G. Don. Apple, Capons Carmichael. *H. Aug.* ☉. Root fusiform, but slender. Stem biped, below. Flowers yellow. Petal upright, cylindrical, or obscurely 4-angled, veiny, the veins showing slight prominences; the beak well-shaped, situated, square at its base. 3m.

21. SINAPIS.

1. *S. arvensis* (wild Mustard or Charlock), pods with many angles tergal and usually longer than the two-edged beak, lower costa sublyrate. *Lichtf.* p. 369. *E. B.* t. 1748.

Hab. Corn-fields, too frequent. *H. May, June.* ☉.

One to two feet high, rough. Flowers rather large, yellow.

2. *S. alba* (white Mustard), pods linear tergal shorter than the uniform beak, leaves pinnatifid. *Lichtf.* p. 361. *E. B.* t. 1677.

Hab. Waste places, frequent. Corn-fields about Edinb., *May, H. July.* ☉.

Stem 1—1½ feet high, hairy. Lobes of the leaves variously cut and toothed or cross. Flowers large, yellow. W'd distinguished by its long beak.—This plant it is, which, as a young state, is eaten under the name of *Mustard*, with *Cress* (*Levinsium sativum*).

3. *S. nigra* (common Mustard), pods appressed glabrous castaneous, style short subulate, upper leaves linear-lanceolate entire glabrous. *Lichtf.* p. 369. *E. B.* t. 969.

Hab. Under hedges and waste places. *H. June.* ☉.

Three to four feet high. Lower leaves large, lyrate, rough. Flowers yellow. Petal with a very short beak, or rather only the persistent style and stigma at its summit, quadrangular, its surface scarcely ridged.

4. *S. arvensis* (fine-leaved Mustard), pods linear glabrous shortly beaked erect, pedicels spreading, leaves lanceolate very acute pinnatifid or bipinnatifid, stem glabrous. *H. B.* t. 525 (*Sinapis arvensis* fruct.).

Hab. Coast of Fife at St David's, Mr P. Reid. Coast of Fife, between Banaholm and Queensberry, Mr Gordon. *H. July, Aug.* ☉.

Root thick, woody. Stem one or one foot and a half high. Leaves with a very disengorgable smell. Flowers large, pale yellow.

22. RAPHANUS.

1. *R. raphanistrum* (wild Radish or jointed Charlock), leaves simply lyrate, pods of one cell jointed striated. *Br.* *Lichtf.* p. 69. *E. B.* t. 846.

Hab. Corn-fields, frequent. *H. June, July.* ☉.

One to one foot and a half high. Leaves petiolate, rough. Flowers yellow, joined.

2. *R. maritimum* (Sea Radish), leaves interruptedly lyrate, pods of one cell jointed striated. *E. B.* t. 1612.

Fls. On the beach on the Isle of Bute, found in 1753 by Dr. Walfer, Beach, 3 m. from the Mull of Gallowsy. *Mr. J. Mackay*. Some beach near Mounstewart on the Isle of Bute, *Mackay*. Various parts of the coast of Argyshire, *Galloway, Mac., & Don. Fl. Journ. p.* Three to four feet high. All the leaves rough and the lobes toothed. Flowers rather large, yellow.—*Stuart* says it was long cultivated by Dr. Walfer, who considered it as most excellent, preferable to horn-melick, and who found cattle to be extremely fond of it.

XVI. MONADELPHIA.

1. PENTANDRIA.

1. **EUCRATUM.** Monogynum. Cal. of 5 leaves. Cor. of 5 petals. Nectariferous glands 5. Imperfect filaments 5, alternating with the 5 perfect stamens. Fruit beaked, separating into 5 1-seeded capsules, each with a long, spiral awn, bearded on the inside.

(*Limon, PENT. PENTAG. Geranium pusillum, Ord. Decand.*)

2. DECANDRIA.

2. **GERANIUM.** Monogynum. Cal. of 5 leaves. Cor. of 5 separate petals. Nectariferous glands 5. Fruit beaked, separating into 5 monospermous capsules, each tipped with a long, naked, single awn (rather spiral and bearded).

(*Ononis, Decand. PENTAG.*)

3. POLYANDRIA.

5. **LAVATERA.** Polygynum. Cal. double; cor. 3-lobed. Capsules numerous, circularly arranged, 1-seeded.
4. **MALVA.** Polygynum. Cal. double; cor. of 5 leaves. Capsules numerous, circularly arranged, 1-seeded.
3. **ALTHEA.** Polygynum. Cal. double; cor. of 5 leaves. Capsules numerous, circularly arranged, 1-seeded.

1. PENTANDRIA.

1. EUCRATUM.

1. **E. clusterium** (*Hemlock-dressed Stork's-billy*), peduncles many-branched, leaves pinnate, bracts axillary pinnatifid and cut, petals longer than the cal., stem prostrate hairy. *Lightf. p. 366* (*Geranium mont.*). *H. B. t. 1768.*

Fls. Densely pubescent and rusty ground. *Fl.* summer months. *Q.* Whole plant hairy. Flowers in small umbels, purple, or sometimes white.

2. GERANIUM.

* Peduncles 1-flowered.

1. *G. angustatum* (Hbony Crane's-bill), peduncles 1-flowered, leaves usually orbicular or 3—7 deep lobes each of which is trilobed. *Lichtf.* p. 375. *E. B.* t. 333.

Hab. Rocks and sandy grounds. Arthur's Seat, near Edinburgh, and in the island of Jona. *Lichtf.* Pen-shore at Gairloch Gair, near Glenelg, plentiful, *Moench*. Common on both sides of the Firth of Forth, Mr. *Drum*. About Inverness, Mr. *G. Anderson*. Banks of Loch Rannoch, *Anderson*. 11 July. *W.*

One to one foot and a half high, as often in the genus. Flower-stalk solitary, long. Flowers large, handsome, purple.

** Peduncles 2-flowered. Roots perennial.

2. *G. phaeum* (Dark Crane's-bill), peduncles 2-flowered opposite the leaves, red, slightly curved, petals curved, capsules hooked hairy before wrinkled above, stem erect. *E. B.* t. 322.

Hab. Collingwood woods, but rare, *Moench*. Banks of the Clyde at Blayney Priory, and banks of the Carr, above the mill near Glasgow, rare, *Moench*. Near Lathrigate, *Wm. Linton*. Kinkorran, Pen-shore, Mr. *J. Young*. Woods in Scotland, frequent, *D. Don*. 10 May, June. *W.*

Stem two feet or more high, dichotomously branched. Leaves 2- or 7-lobed; lobes acute, crenate, and serrated. Flowers very drooping, purplish black.

3. *G. apiculatum* (Hood Crane's-bill), peduncles 2-flowered, leaves subsessile with 3 or 7 deep and acute lobes which are cut and serrated, stem erect ensiform, petals slightly notched, capsules hooked hairy (not wrinkled). *Lichtf.* p. 367. *E. B.* t. 323.

Hab. Woods, thickets, sides of rivers, &c., common. 11 June, *Del.* *W.*

One foot to three feet high. Flowers purple, larger than those of *G. phaeum*, but much smaller than in the following species.

4. *G. pratense* (Croughfoot-billed Crane's-bill), peduncles two-flowered, leaves 5-partite, lobes multipartite all the segments acute, capsules hairy smooth (not wrinkled). *Lichtf.* p. 366. *E. B.* t. 404.

Hab. Pastures and thickets, not uncommon, especially such as are moist, near cascades. 11 July. *W.*

One foot to two feet high. Distinguished by its large purple flowers and multipartite leaves.

5. *G. pyrenaicum* (Mountain Crane's-bill), peduncles 2-flowered, leaves uniform 3—7-lobed, lobes oblong almost trifid and toothed at the extremity, stem erect branched, petals deeply notched twice as long as the cal. *Lichtf.* p. 363. *E. B.* t. 405.

Hab. Mountainous pastures and waste places, but not common.

New Edinburgh, Dr. Fergus. Near Bell's Mills and in the King's Park, Edinburgh, Murrh. Near Rathay, Isle of Bute, Mr. Macrae. Hill of Kinross, Mr. Finch. Fl. July. 11.

Ties to three feet high, much branched. Well distinguished by the very obvious segments of the lower leaves (for the upper ones are acute and less divided), and the rather small, numerous, purple flowers, whose petals are obliq.

*** *Primarily biflorous*. Root annual.

6. *G. lucidum* (striking Cross's-bell), peduncles two-flowered, leaves sessile 2-lobed, lobes trilobed and notched obtuse, capsules pyramidal angular dentate-tuberculate, capsules wrinkled. *Lighf.* p. 370. *E. B.* t. 73.

Hab. Rocks and walls. Under Arthur's Seat, Edinb., *Lighf.* Walls, Blantyre Priory, and by the roadside near Bowling Bog, near, Curliane Crag, Glasg., *ibid.* Very plentiful about Dunblod, Mr. Murray. Near Inverness, Mr. G. Anderson. Fl. Jan. July. 12. Stems spreading, shining (as are the leaves), hirtle, swelling at the joints. Leaves small, lower ones often line red. Flowers small, rose coloured.

7. *G. robertianum* (striking Cross's-bell, or First Robert), peduncles 2-flowered, leaves sessile or petiole, hirtle pinnatifid, segments serrulate, cal. angular hairy, capsules notched. *Lighf.* p. 369. *E. B.* t. 1485.

Hab. Woods, hedges, and stone places. Fl. summer months. 13. Stems spreading, red, hirtle. Flowers purple, sometimes white.

8. *G. mollis* (Dane's-foot Cross's-bell), peduncles 2-flowered, leaves rounded or reniform lobed and cut downy, petals notched scarcely longer than the cal., capsules transversely wrinkled, "seeds smooth" (Sm.) *Lighf.* p. 370. *E. B.* t. 773.

Hab. Dry pastures and waste places, common. Fl. July. 14. Stems spreading, prostrate, with long hairs. Leaves lobed, lobes broad, cut. Flowers small, purple, notched. Seeds smooth.

9. *G. rubrofulgens* (round leaved Cross's-bell), peduncles 2-flowered, leaves rounded or reniform lobed and cut downy, petals rather the length of the cal., capsules smooth (not wrinkled) hairy, seeds punctate. *Lighf.* p. 1106.

Hab. Waste places, rare? East side of Misses's garden, near North Maudslon, Dr. Hope. Fl. July. 15.

Distinguished from the former by the entire petals; and, according to Smith, the smooth capsules and punctate seeds. In my specimens, however, of this plant, the capsules are slightly rugose, and in those of *G. mollis* the seeds are minutely dotted.

10. *G. parviflora* (small flowered Cross's-bell), peduncles two-flowered, flowers prostrate, petals notched, leaves rounded or reniform in 5—7 deep lobes, lobes trilobed, capsules smooth crested downy with erect appressed hairs, "seeds smooth." *E. B.* t. 383.

Hab. Thatch ground, and in grassy fields occasionally, frequent

about Cambuslang, Glasg., Monk. *Fabrarum Linka and Arthur's Seat, Edinb., Monk.* *R. June—Sept.* ☉.

Stem weak, prostrate. Leaves deeply lobed. Flowers very small, bluish purple.

11. *G. strictum* (jagged-leaved Crane's-Hill), peduncles two-flowered, petals notched rather shorter than the much rounded cal., leaves 3-partite, lobes trifid or imbricated linear, capsules smooth hairy, seeds punctate. *Lighf., p. 371. E. B. t. 788.*

Hab. Hedges and pastures. By the hedge in the meadows at Edinb., Dr. Parsons. Occasionally about Glasg. in waste ground and dry pastures. *R. May—July.* ☉.

Stems spreading. Distinguished by the much divided leaves, and the short joints of the branches, which, as Curtis observes, thus appear sitting among the leaves.

12. *G. subulatum* (long-stalked Crane's Hill), peduncles two-flowered shorter than the leaves which are 3-partite, the lobes divided into many acute segments, petals entire as long as the much rounded cal., capsules smooth glabrous, seeds punctate. *Lighf., p. 372. E. B. t. 358.*

Hab. Dry pastures. Rocky place by the road-side going from Glasg. to Dumfries, *Lighf.* Roadside near N. Queensferry, near Monk Near Glasgow, Mr. M. Mack. *R. June, July.* ☉.

Stems very slender, prostrate, lying upon the stem, as in G. strictum, reflexed. Capsules quite glabrous.

3. POLYANDRIA.

3. ALTHEA.

1. *A. officinalis* (Marsh-Mallows), leaves oblong ovate slightly 3—5-lobed serrated. *Lighf., p. 373. E. B. t. 147.*

Hab. Marshes, rare. Near Ardinghall on the Selkirk Firth, Dr. Baigent. Marshy places on the Campsie hills, near Glasg., Monk. *R. Aug.* ☉.

Two to three feet high, remarkable for the white, soft, stony pubescence on the whole plant. Flowers 3—5 together, axillary, on short pedicels, pale rose colour, large—Althæa a very mucilaginous juice.

4. MALVA.

1. *M. sylvestris* (common Malva), stem erect herbaceous, leaves with 7 rather acute lobes, peduncles and petioles hairy. *Lighf., p. 375. E. B. t. 671.*

Hab. Waste places and by river-sides, common. *R. June—Aug.* ☉. Stem 2—3 feet or more high, branched. Flowers large, purplish rose colour, with deeper veins, 3—5 together, axillary. Fruits large, obovate.

2. *M. rotundifolia* (dwarf Malva), stem prostrate, leaves roundish ovate 3-lobed, fruit stalks bent down. *Lighf., p. 374. E. B. t. 1092, and t. 211 (M. parvifl.).*

Hab. Waste places and by river-sides. *R. June—Aug.* ☉.

Stems from 10 inches to 1 foot in length, branching only from the root. Flowers small, roundish.

3. *M. mucronata* (Musk Mallow), stem erect, radical leaves reniform in 5 or 7 broad incised lobes, sessile ones 5-partite pinnate-mucronated, segments linear, cal. hairy, bracts of the ant. cal. linear. *Erghtz* p. 376. *E. B. r.* 764.

Hab. Meadows and pastures, not uncommon. Dumbarton castle, &c. *Alph.* Pl. Aug. 2.

Two to three feet high. Flowers large, beautiful, rose colour, 1—5 together from the axils of the terminal leaves. The leaves yield a faint musky smell if drawn through the hand.

3. LAVATERA

1. *L. arbores* (Sea-side Tree Mallow), stem arborescent, leaves with about 7 angles downy pilose, peduncles axillary clustered single-flowered. *Erghtz* p. 374. *E. B. r.* 1841.

Hab. Rocks upon the sea coast, as Inch-Carvey and Myrinsloch, in the Firth of Forth, and in Linne's island, *Salisbury* Pl. July, Aug. &c. Three to five feet high. Flowers large, purple rose colour, shining, darker at the base of the petals.

XVII. DIADELPHIA.

1. HEXANDRIA.

1. *FUMARIA*. Cal. small, of 2 leaves. Pet. 4, irregular, one of them gibbous at the base. Filaments 3, monospermous, each bearing 3 anthers.

2. OCTANDRIA.

2. *PORTULACA*. Cal. of 3 leaves, 2 of them wing-shaped and coloured. Caps. compressed, obcordate.

3. DECANDRIA.

* Stem. all rounded or monosiphous, the tube often split above.

3. *GENISTA*. Cal. 2-lipped, upper one with 2, lower one with 3, teeth. Standard bent backwards from the rest of the flower. (*Genista* and *Spartium**, *Sm.*)
4. *ULXIS*. Cal. of 2 leaves, with a small scale at the base on each side. Legume turgid, scarcely longer than the cal.
5. *ANTYRRAHIS*. Cal. inflated, 5-toothed, enclosing the small, roundish, 1—3-seeded legume.

* I cannot see a single character attributed to *Spartium* (in *S. asperatum*) which is not equally found in *Genista*. I therefore follow *Jussieu* and *Desmoulle*, in naming our only British species with *Genista*.

5. *ONONIS*. Cal. 5-lobed, its divisions linear. Standard stip-
ped. Legume winged, sessile. Filaments in one undivided set.

“ Stem, distichophora, 2 united and 1 free

† Style more or less pubescent beneath the stigma.

7. *ONONIS*. Style linear, cylindrical, downy above. Cal. ab-
sent at the base, its upper segment deeper and shorter.

8. *LATHYRUS*. Style plane, downy above, broader upwards.
Cal. with its two upper segments shortest.

9. *VICIA*. Style bearded beneath the stigma.

10. *ERVEN*. Stigma capitate, hairy all over on the outside.

†† Style glabrous.

+ Legume of 2 longitudinal cells, more or less complete.

13. *ASTRAGALUS*. Legume 2-celled, more or less globose.

+ + Legume more or less pointed.

11. *ONISTROTUS*. Legume jointed, curved, cylindrical.

12. *HIPPURIDRUM*. Legume compressed subcylindrical,
with many deep notches in one of its edges.

+ + + Legume of one cell, one- or many-seeded (not jointed).

16. *MERICURUS*. Legume bilobate or spirally twisted, compres-
sed, subcylindrical.

14. *TRICHLIS*. Legume (in general) shorter than the cal., 1- or
many-seeded, indurated, deciduous. Flowers more or less
capitate (as *Tr. offic. maritima*).

15. *LOTUS*. Legume cylindrical, straight. Wings of the cor.
covering by their upper edge. Filaments dilated upwards.

1. HEXANDRIA.

1. FUMARIA.

* Caps spheroid, 1-seeded (*Fumaria*).

1. *F. officinalis* (common *Fumitory*), spike lax, stem branched
spreading, leaves bipinnate leaflets almost linear. *Lichtf.*
p. 379. *E. B.* t. 360.

Hab. Carn-Ards and gardens, frequent. *R* May—Aug. *Q.*
One foot high, rather glaucous. Spikes of flowers rose coloured,
deeper at the extremity of the cor., inserted opposite the leaves.

2. *F. caperata* (rough *Fumitory*), spike lax, stem climbing
by means of the tendril-like petioles, leaves trifoliate leaflets
obovate-cuneiform notched and lobed. *Lichtf.* p. 380. *E. B.*
t. 343.

* Sir James Smith places this in the previous division, “*Legum. sub-articulatum*,” but I think it comes better in this.

HAB. Fens and bogs, generally among bushes. About Redhall, 4 miles from Edinburgh, and amongst rocks by the sea going from Cumbernauld to Brechin, in the Isle of Arden, *Lig. &c.* Hedges about Hamilton, and in a field at the back of Kilmuir wood, Glasgow, *Lig. &c.* *P. summer months* ☉.

Two to three feet long, more glaucous than the last, leaflets much broader, more regularly in threes, their petioles acting as tendrils, flowers pale coloured and larger.—The extremes of this and the last species appear different enough, but Mr. Murray and myself examined a *Flanaria*, which is a common weed in the Glasgow Bot. garden, which is so intermediate between the two, that it was difficult to say to which it should belong.

* * * * * *Caps. imm.* 2- or more-seeded (*Corpiata, Decand.*)

3. *P. clausulata* (resembling *Panicum*), spikes less, stems often long glaucous, leaflets 3—5-partite, lobes acute acute, petioles ending in tendrils. *Lig. &c.* p. 360. *E. B. &c.* 103.

HAB. Rocks, stony places, and rocks of houses, most abundant, especially in the Highlands. Inverness, Mr. G. Anderson, *P. July, Aug.* ☉.

Stem long, very slender, and whole plant extremely delicate. Flowers pale yellow, small.

2. OCTANDRIA.

2. POLYGALA.

1. *P. vulgaris* (Millarce), flowers in a terminal raceme erect, wings of the cal. curved obtuse longer than the cor., stem herbaceous procumbent, leaves linear-lanceolate. *Lig. &c.* p. 361. *E. B. &c.* 74.

HAB. Dry hilly pastures, abundant. *P. June, July.* ☉.

Stem 4—6 inches long, branched at the base. Flowers blue, purple, or white. Cor. beautifully crested at the extremity. Cal. leaves persistent, enclosing the fruit.

3. DECANDRIA.

2. GENISTA.

* Branches unarm.

1. *G. sagoria* (common Broom), leaves ternate and solitary oblong, flowers axillary shortly pedicellate, legumes hairy at the margin, branches angular. *Lig. &c.* p. 362, and *E. B. &c.* 1239 (*Spartium* sup.).

HAB. Dry hills and bushy places, plentiful. *P. June.* ☉.

Three to six feet or more high. Branches long, straight, green. Flowers large, bright yellow; leaf broad; stem and long twisted style much exposed by the spreading of the petals. Legume large, compressed, dark brown.

2. *G. stricta* (Dyer's Greenweed), leaves lanceolate glabrous,

branches rounded striated above, flowers racemose, legumes glabrous. *Lepidif.* p. 354. *E. B.* i. 44.

Hab. Generally hills and sides of rivers in the Lowlands, frequent. *Lepidif.* 11 July 9.

One foot to two feet high. Leaves rather distant, small, edges sometimes a little downy. Flowers rather small, pale yellow, almost axillary, a small floral leaf or bractlet at its base — Elysium of a yellow colour.

“ Branches spinous.

2. *U. anglica* (Needle Fern), leaves ovate-lanceolate glabrous, splanis simple none on the flowering branches, flowers axillary subsessile, legumes glabrous. *Lepidif.* p. 354. *E. B.* i. 44.

Hab. Healthy and marshy grounds, not infrequent; on 1 mile above Dunstable, *Lepidif.* Portland hills and hills near Kelso, common in Ross-shire, Moray. Rare about Glasgow, common on the Caithness hills, Ayr. Common hills, and moor, Perthshire, Mr. Murray, Callaghan, near Mary, Kinross-shire, Orkney hills, and N. of Perth, Mr. Stewart. 11 June, 9.

Stems reclined, very thin. Leaves very small. Flowers yellow.

4. ULEX.

1. *U. europaeus* (common Fern, *Ulex* or *Genet*), cal. teeth slender connivent, bristles ovate lax, bracteolate erect. *Lepidif.* p. 353. *E. B.* i. 742.

Hab. Healthy places in the Lowlands; rare in the Highlands. It throughout the summer, but most abundantly in May. 9.

Shrub of 3—4 feet in height, with innumerable green striated branches, clothed with acute branching spines, with a few leaves at their base of a lanceolate form and a little hairy, very minute. Cal. pubescent. Cor. bright yellow.

2. *U. minor* (Dwarf Fern), “teeth of the cal. lanceolate spreading, bristles minute close-pointed, branches reclining.” *Sm. Lepidif.* p. 353 (*U. europ.* β.). *E. B.* i. 742.

Hab. Delphie, Mr. D. Stewart. Portland Hills, G. Don. It mostly in autumn. 9.

Smaller than the last in all its parts. “The flowers afford certain specific characters — the bristles are very minute, becom. close-pressed to the cal., often hardly visible. The cal. is more silky and yellow; the teeth deeply cut, spreading, and very evident — a circumstance which will always prevent its being confounded with the other species.” *Sm.* Are these marks constant? A very acute botanical friend has suggested to me that probably all the marks in *Ulex minor* are caused by *U. europaeus* having been repeatedly cut down for fuel: the shrubs are then more prostrate for a time and smaller.

5. ONOCLEA

1. *O. arvensis* (East-Arrow), stem hairy, branches at length

spinosa, flowers mostly solitary, leaves ternate below, the rest simple serrated entire at their base. *Lepidif.* p. 366, and p. 367 (*G. repens*). *E. B.* t. 1. 652.

HAB. Barren pastures and the borders of fields. Fl. June—Aug. γ .
A very variable plant, erect or procumbent, more or less spiny, leaves ovate or wedge-shaped, flowers rather large, rose coloured.

6. ANTHYLUS

1. *A. vulneris* (*Kidney Patch*, or *Loody's Finger*), leaves pinnate unequal, heads of flowers in pairs. *Lepidif.* p. 367. *E. B.* t. 1. 104.

HAB. Dry pastures, not uncommon, King's Park, Edinburgh. *Lepidif.*
Some according. *Lepidif.* 2—3, leaved, entire, hairy, terminal one the largest. Flowers in extended heads, long, yellow, with hairy calyx, and digitate large bracts.

7. OROBUS

1. *O. sulcatus* (*Sulcatus Orobus*), leaves pinnate with 3 or 4 pairs of lanceolate leaflets glaucous beneath, stipules serrate-pinnate, toothed at the base, stem simple erect. *Lepidif.* p. 368. *E. B.* t. 1. 1132.

2. *laevis linearis*. *O. fraxifolia*, Roth, and *O. Don. Diver.* of rare Scottish Plants, p. 5.

HAB. Woods and hilly pastures, frequent, especially in the Highlands. δ Near Kinross, δ Don. Fl. June. γ .

Roots tuberous, eaten by the Highlanders under the name of *Cormack*, and said to repel hunger. Stem erect, 1 foot high, winged. Flowers in long stalked axillary clusters, purple, white. *Lepidif.*
long, pedicels, cylindrical, black.

2. *O. sphegodes* (*Wood Orobus* or *Bitter Patch*), leaves pinnate hairy with 7—10 pairs of ovate-oblong acute leaflets, stipules serrate-pinnate, stem branched decumbent hairy. *Lepidif.* p. 369. t. 16 (much too hairy). *E. B.* t. 518.

HAB. Rocky places and banks of rivers, but not common; side of the Clyde near Lanark; Balford in the vale of Ruth, *Lepidif.* Carlina ridge, near Glasgow, N. side of the river, High Sandpiper, St. W. Black. Back to the N.W. of Newburgh, Fife, *Don.* Back near W. Linton, Fife, *Don.* March, &c. Fl. July. γ .

Flowers in several rows, purplish white.

8. LATHYRUS

1. *L. pratensis* (*Meadow Fitchleg*), peduncles 2—5-flowered, leaflets with two lanceolate 3-nerved leaflets, stipules sagittate as large as the leaves. *Lepidif.* p. 371. *E. B.* t. 670.

HAB. Moist meadows and pastures. Fl. July, Aug. γ .
Stems 2—3 feet long, climbing. Flowers yellow. Cattle are said to be very fond of this common plant.

2. *L. sylvaticus* (*Quercus-leaved Erect-climbing Pea*), peduncles

4—6 flowered, tendrils with two uniform leaflets, stem winged. *Lighf.* p. 392. *E. B.* t. 555.

HAB. Dry rough shrubby places and wood-sides, but rare, *Sittell*. Rocks near the Red Head promontory, on the E. coast of Angus-shire, *G. Don*. Fl. July, Aug. 2.

Stems 3—4 feet long, climbing, broadly winged. Flowers large, greenish, with purple veins.

3. *L. latifolia* (broad-leaved Kew-leafing Pea), peduncles many-flowered, tendrils with two ovate-elliptical mucronated leaflets, stem winged. *E. B.* t. 1106.

HAB. Among the debris of Salisbury castle, Miss Ansell. Woods near Kew-salbridge, *Moench*. In neither station I find it really wild. Fl. July, Aug. 2.

A well known climber and a great ornament of cottage gardens. Somewhat resembling the last, but leaves vastly broader, flowers larger and more purple.

4. *L. pedunculata* (March Kew-leafing Pea), peduncles from 2—6 flowered, tendrils with 2—4 pairs of linear-lanceolate acute leaflets, stipules semiamplexant lanceolate, stem winged. *Lighf.* p. 392. *E. B.* t. 100.

HAB. Sides of hives and in marshy boggy ground, but rare. *Lighf.* Fl. July, Aug. 2.

Mr. Lighthoot, who gives the above station for this plant under its description, afterwards says he suspects a var. of *Ononis latifolia* was taken for it, so that it is a doubtful name. Its insertion here, however, may lead to its actual discovery, for it is by no means of rare occurrence, in England, in such situations as *Lighfoot* describes.

Stems 2—3 feet high, climbing. Leaflets about 2 inches long. Flowers bluish purple.

B. VICIA.

* *Peduncles lengthened, many-flowered*

1. *V. apiculata* (Hood-Fitch), peduncles many-flowered longer than the leaves, leaflets elliptico-oblong mucronate, stipules linear deeply toothed at their base. *Lighf.* p. 394. *E. B.* t. 72.

HAB. Bushy mountainous places among rocks. Feet of Salisbury castle; Carlsbad rocks near Lanark, &c. *Lighf.* Collington woods, *Moench*. Near Inverness at the foot of Benavach, *Mr. G. Anderson*. Cadder Linn and other parts of the Devis, *Mr. Arnott*. Woods of Kippin Ross, near Dunblane, *Mr. J. Young*. Between Dunkeld and Blair Athol, *Mr. Murray*. Falls of Moness, *Mr. Barrer and Mack*. Kinnale wood, by the side of the footpath, *High*. Fl. July, Aug. 2.

Stems 3—6 feet high, climbing with their branching tendrils. Leaflets 6—8 or 10 pairs. Flowers numerous, white, streaked with bluish veins.

2. *V. cracca* (tufted Fitch), peduncles many-flowered longer

than the leaves, flowers indented, leaflets lanceolate slightly hairy, stipules membranaceous nearly entire. *Lightf.* p. 354. *E. B.* t. 1168.

Hab. Shady places, frequent. Fl. July, Aug. \mathfrak{N} .

Peas three feet or more high, climbing. Flowers numerous, crowded, drooping and imbricated, fine bluish purple.

** Flowers solitary, nearly entire.

3. *V. sativa* (common Pea), flowers sessile undulate, legumes nearly erect, lower leaves retuse stipules toothed impressed with a dark spot, seeds smooth. *Lightf.* p. 355. *E. B.* t. 324.

Hab. Cornfields, frequent. Fl. June. \odot

One foot high or more. Legume very variable in width and dimensions, often truncate and marcescent, and in number also, from 2 to 6 pairs or more on a petiole. Flowers large, purple and blue, or red. Legumes more or less pubescent. The small ones are often confounded with the following species.

4. *V. hirsutoides* (Spring Pea), flowers sessile solitary, legumes glabrous, leaves generally in 2 pairs lower ones retuse, stipules entire, seeds tuberculated. *Lightf.* p. 356. *E. B.* t. 32.

Hab. Dry pastures, especially of a gravelly soil. King's Park, Edinb., and Little garden, St. James. Blackford hill, Hough, Dalnakey hill, near Edinb., and hill of Kennelby Park, Mr. Barrer and Black. Dunsinclair, Mr. Arnot. Along the coast about Largo, In. and Dunbarian-castle, Mr. Murray. Fl. May, June. \odot .

Three to five inches high, branched. Stipules without the dark impressed spots of the last species, and may be known from the small specimens of that, if in blossom, by the small, more purple, flowers, scarcely so large as the leaflets, and with a less relaxed leaf, if in fruit, by the rough or dotted seeds, as Mr. James Smith has well observed. The foliage is very variable in both, but here there are fewer leaflets on a petiole and the tendrils are small and simple.

5. *V. sativa* (rough-podded or Blue Pea), flowers sessile solitary, legumes reflexed hairy, apex diffuse, stipules coloured, standard glabrous. *E. B.* t. 451.

Hab. Hills at N. Queensberry*, and between Montrose and Arbroath, St. Dun. Fl. June, July. \mathfrak{N} .

Stems 8—12 inches high, weak. Legume elliptical, lanceolate, hairy smooth, and at the apex, 5 to 3 pairs on a petiole. Flowers large, yellow. Legumes compressed. Distinguished from the *V. hirsutoides* by its glabrous, not pubescent, standard of the flower.

6. *V. repens* (Bush Pea), flowers mostly in terms subpetiolaceous, legumes upright glabrous, leaflets ovate obtuse gradually smaller upwards apex the petiole. *Lightf.* p. 357. *E. B.* t. 76.

Hab. Woods and shady places, frequent. Fl. June, July. \mathfrak{N} .

One foot to two feet high. Legume large. One or two of the four free-

* Mr. Arnot has searched for it in vain in this direction.

are which grow together, often imperfect, hence the character of "Legumes prostrata" tends to mislead. *Stamens* purpleish blue.

10. ERYTH.

1. *E. discatum* (hairy Turn), peduncles many-flowered, legumes hairy two-seeded, leaflets linear oblong truncate. *Egghf.* p. 396.

Hab. Corn-fields and pastures. Fl June ☉.

Stems 2—3 feet long, weak, straggling, and climbing. Leaflets numerous. Flowers very magenta, pale purpleish blue.

2. *E. tetragynum* (smooth Turn), peduncles 2-flowered, legumes glaucous 4-seeded, leaflets linear oblong obtuse. *Egghf.* p. 397. *E. B.* t. 1222.

Hab. Corn-fields and bushy places. Fl June ☉.

Smaller and slenderer than the last. Leaflets fewer.

11. GENTHOPUS.

1. *G. perparilla* (common Bird's-foot), leaves pinnated with 4—6 pairs of leaflets and a terminal one, flowers capitate fasciculated, legumes curved upwards. *Egghf.* p. 399. *E. B.* t. 399.

Hab. Dry grassy soils and sandy pastures. Fl June ☉.

Stems from 2 to 6 inches high, much branched at the base and spreading. Leaflets oval. Flowers white, with red knee. The 4 or 5 long curved jointed legumes, resembling a bird's foot, have a remarkable appearance.

12. HIPPOCREPIS.

1. *H. communis* (tufted Flare-colour Pivot), legumes 5—8 clustered pedunculated curved acutous situated at each margin. *E. B.* t. 31.

Hab. Chalky pastures, rare. Dandelion-cuckoo nest Apr, upon ground of a-chalk nature. Mr. Bird. Fl July ☿.

Stems 4—6 inches high, much branched and woody at the base. Leaflets 4—6 pairs with an odd one, obovate-oblong. Petioles long. Flowers yellow, pale, much resembling those of *Lathyrus pratensis*, but the legume very different and very remarkable.

13. ASTRAGALUS.

* End of the ear terminating in a straight point, upper surface of the legume with the margins integerrim. (*Myrtosus*, Decond.)

1. *A. senecalis* (hairy Mountain Milk Pivot), silky, stem erect, scape longer than the leaves, legumes erect ovate-cylindrical inflated pubescent 2-celled, style persistent. *Egghf.* p. 461. t. 17. *E. B.* t. 693.

Hab. Dry mountains, rare. Upon Carr-dung, one of the lower heads of Ben Sgair, a high mountain of Glen Oyran, in Upper Lorn, by Strath Bay of Port, on the eastern coast, and on a rocky soil at Cromarty, Mr. Robertson. Hills about N. Queensberry, and with white B. Mough. Ardsdale and lower Naver, in Sutherland, Mr. Borer and Brook. Fl July ☿.

This is a very charming plant, clothed with a beautiful silky pubescence, especially on the young leaves. *Leaflets* 8—10 pairs, with an odd one, narrow, acute, acute. *Stems* 4 to 5 inches high when in fruit. *Flowers* capitate, large, bright purple.

2. *A. compressa* (yellowish Mountain Ash-Fruit), somewhat silky stemless, *stems* about the same length as the leaves, *legumes* erect ovate inflated peduncles sessile. *E. B. t.* 252.

Hab. On a rock on one of the mountains at the head of Clove, near the White Water, at Don. *Fl.* July. γ .

Leaflets elliptical-lanceolate. *Flowers* capitate, yellowish, tinged with purple.

3. *Leaf of the Coy. above*. *Legumes* with the lower others having its margins interpleated (*Astragalus*, Decand.).

3. *A. hypoleuca* (purple Mountain Ash-Fruit), stem prostrate, *leaflets* slightly emarginate, *legumes* erect capitate hairy their cells 1-nerved. *Lightf.* p. 400 (*A. armaria*). *E. B. t.* 274.

Hab. Hills pasture. King's Park, Edinb.; Sand, Musselburgh; Hill of Manse, near Perth; and in dry ground near York. Canada, at the Duke of Athol's, Blair, Lightf. Coast near Grimsby, Edinb., plentifully, along the Banks of the Tay, near Darnley, Perthshire; and Links of St. Fergus, Mr. Murray. Hill of Kinross, by Perth, Mr. Murray and Hook. *Fl.* July. γ .

Stems weak, a few inches in length. *Leaflets* elliptic-ovate, entire, hairy. *Peduncles* longer than the leaves, curved upwards. *Bracts* of *flowers* large, bluish purple. *Legumes* erect, acuminate, hairy.

4. *A. glyptolobus* (small Ash-Fruit), stem prostrate, *legumes* somewhat triangular curved sessile glabrous, leaves longer than the peduncles, *leaflets* oval. *Lightf.* p. 329. *E. B. t.* 260.

Hab. Woods, but not common. Coquet woods, near Edinb.; Dr. Parsons. Banks of the Water of Leith, between Colinton and Broughtonhall; many places on the coast between Nether Cumbard and Queensberry, Rough. *Fl.* July. γ .

Readily distinguished by its great size. *Stems* prostrate, 2—3 feet long. *Leaves* with large, acute stipules, *flowers* dingy yellow. *Legumes* as such or more long, curved.

15. TRIFOLIUM.

* *Flowers* racemose (*Michx.*, Decand.).

1. *T. officinale* (common Medick), *legumes* racemose calked 2-nerved ragged, *stipules* lanceolate-sulcate undivided, *leaflets* oblong-sulcate toothed, *stems* erect. *Lightf.* p. 402. *E. B. t.* 1343.

Hab. Dry places and by way-sides. *Fl.* July. γ .

Stems 2—3 feet high. *Flowers* in peduncled, axillary racemes, axonal, yellow.

*** *Flowers more or less capitate.*

† *Legumes axiled, many-seeded.*

2. *Tr. crassicauleoides* (*Bird's-foot Trefoil*), legumes axiled subterrene with about 8 seeds (twice as long as the cal., leaflets obcordate toothed at the extremity, stems decumbent. *Lichtf.* p. 403. *E. B.* i. 1847.

HAB. Dry shady pastures, but rare. At Maitland Bridge, between Edinb. and Musselburgh, *Lichtf.* Fehrerow and Musselburgh Links, Mough. Fl. June. G.

Stems spreading, 2—3 inches in length. Flowers small, rose coloured. Legumes long, and not ascending with the grass, hence it has been placed by DeCandolle in the *H. Gail.*, and by my myself in the *H. Loel.*, with the *Trigonotis*; but the cor. does not correspond with that genus.

†† *Legumes covered by the Cal., many-seeded.*

3. *Tr. repens* (*white Trefoil*, or *Dutch Clover*), heads umbellate, legumes with four seeds, cal. teeth unequal, leaflets obcordate serrulate, stems creeping. *Lichtf.* p. 404. *E. B.* i. 1793.

HAB. Meadows and pastures, common. Fl. summer months. M. Heads of flowers white; each flower on a footstalk, which becomes recurved after flowering, and then all the legumes are drooping and covered with the withered, brown cor. This is the Dutch clover of the agriculturists, and in great repute for pastures. The leaflets have a dark spot at the base, and a white line bordering it near the middle.

††† *Legumes covered by the Cal., 1-seeded.*

+ *Cal. (hairy), not inflated after flowering. Standard of the Cor. deciduous.*

4. *Tr. pratense* (*common purple Clover*), "heads dense ovate, lower tooth of the cal. shorter than the tube of the monopetalous unequal cor., leaflets oval nearly entire, stems ascending." *Willd.* *Lichtf.* p. 405. *E. B.* i. 1770.

HAB. Meadows and pastures, frequent. Fl. summer months. Y. Flowers reddish purple. This is the common clover, so much cultivated for hay. The leaflets have often a white lamellate spot.

5. *Tr. medium* (*Stingray Trefoil*), "heads luxuriantly globose solitary, lower tooth of the cor. as long as the tube of the monopetalous nearly equal cor., leaflets elliptical subacutely serrated and striated with veins, stems branched zigzag." *Willd.* *Lichtf.* p. 406 (*Tr. alpestre*). *E. B.* i. 180.

HAB. Moist and shady places at the foot of the Highland mountains, not cultivated. *Lichtf.* Slides of Glenkiln Burn, near the church of Kilmichael, Dr. Borlase.

Stems remarkably zigzag. Heads of flowers purple, larger than last, and more lux. Leaflets squarish.

6. *Tr. arvense* (*Three-foot Trefoil*), heads very hairy subcylindric

dried, cal. teeth setaceous longer than the cor., leaflets narrow-obovate. *Lepidif.* p. 493. *E. B.* t. 944.

Hab. Corn-fields and dry pastures, not infrequent. *St. July*, Aug. 30. Stems 5—12 inches high, erect, branched. Flowers very obscure. Remarkable for the many subglobose cal. hairy heads in spikes.

7. *Tr. nudum* (rough Trefall), heads terminal and axillary sessile ovate, cal. teeth unequal narrow-lanceolate right at length recurved, leaflets obcordate serrulate. *Lepidif.* p. 497. *E. B.* t. 933.

Hab. Dry soils by the sea shore, near Edinb., *St. Parsons*. Dry pastures at Dunbar, by the sea. *Mr. Harvey and Hook St. June* 30.

Very similar to *Tr. glomeratum*, which, like this, is a small, procumbent, spreading plant, of 2—3 inches in length, and has also the cal. segments recurved. Here, however, the plant is hairy, the heads not ovate, the flowers not white, the leaves are finely toothed, and the cal. segments are narrow. In *Tr. glomeratum* the plant is glabrous, the heads are round, the flowers reddish, the leaves strongly toothed, the cal. segments broad. The flowers in both are very small: and they both, in England, grow in the same situation.

8. *Tr. striatum* (soft leaved Trefall), heads terminal and axillary ovate sessile very subulate, cal. striated hairy with unequal straight teeth, leaflets obcordate nearly entire pubescent. *Lepidif.* p. 498. *E. B.* t. 1844.

Hab. Dry pastures, as in Edinb. Park, abundantly, *Lepidif.* *St. June* 30.

Frsts 4—5 or 10 inches long, more or less procumbent or inclined, pubescent. Flowers small, purplish red. Cal. deeply furrowed, swelling with 3 almost setaceous, straight, not recurved teeth.

++ Cal. remarkably inflated after flowering. Standard of the Cor. striated.

9. *Tr. fragiferum* (Strawberry-headed Trefall), heads upon long stalks roundish, cal. after flowering inflated membranaceous pubescent two of the teeth setaceous reflexed, stems creeping, leaflets obcordate serrate. *E. B.* t. 1050.

Hab. Moist pastures. Links near Corbennie, *Mr. C. Stewart*. Links near *St. Andrew*, *Mr. J. T. Mackay*. Links near *Abertady*, and Links near *St. Andrew*, *March St. July*, Aug. 2.

Flowers very small, purplish red. Cal. remarkably large after flowering, inflated, veined, and clustered, and often coloured, so as not easily to separate the frs. from which it derives its specific name. Mouth of the Cal. at this time irregularly contracted.

+++ Standard of the Cor. persistent, narrow, enveloping the frs. (Flowers yellow.)

10. *Tr. procumbens* (Hop Trefall), "spikes oval indurated, standard deflexed persistent indurated, stems procumbent, leaflets obovate," *Sm.* *Lepidif.* p. 499 (*Tr. agrarium*). *E. B.* t. 943.

Hab. Dry pastures and corn-fields, frequent. Fl June, July ☉.
Stems spreading widely, "rendered conspicuous in their more advanced
stage by their prominent top-like heads," Sm.

11. *Tr. minor* (pale yellow *Trifolium*), "spikes capitate hemi-
spherical, peduncles upright, standards smoothish, stems pro-
cumbent, petiole lengthened upwards," Sm. *Lightf.* p. 439
(*T. procumbens*). E. B. t. 1226.

Hab. Pastures, frequent. Fl June, July ☉

Stems much spreading. Leaves obovate, emarginate, toothed, "as a
very short general bractlet, the central bract elevated on a much
more considerable petiole still than in *T. procumbens*, or in *T. filif-
forme*, which correspondance well characterizes the species. Flowers
very small, from 10—15 on a head" Sm.

12. *Tr. filiforme* (pale yellow *Trifolium*), "heads lat of few
flowers, peduncles capillary flexuous, standards smooth, stems
procumbent, leaflets subsessile," Sm. *Lightf.* p. 410. E. B.
t. 1257.

Hab. Dry sandy soils, but not very frequent, *Lightf.* Sandy banks
common about Glasgow, *Moqh.* Not uncommon in the neighbour-
hood of Edinburgh and Perth, *Moqh.* Fl June ☉.

"Flowers from 5—8 in a head. Cal. teeth less remarkably dispropor-
tioned than in *T. minor*" Sm.

15. LOTUS.

1. *L. corniculatus* (common Bird's-foot *Trifolium*), heads dis-
persed, stems decumbent, legumes cylindrical patent. *Lightf.*
p. 411. E. B. t. 2000.

L. major, larger stems nearly erect. *L. major*, E. B. t. 2000.

Hab. Pastures every where, abundant. *S.* Banks of the Clyde above
Dulcarn. Road-side to Harlowe Loch, plentiful, *Moqh.* Saline
of Loch Lomond, along with and as common as a, *Mrs Murray*
and *Black.* Fl summer months. ♀

Varying much in size and direction of the stems. Leaflets obovate,
entire, more or less hairy, with a pair of large obtuse stipules at the
base of the petiole. Flowers yellow. Legumes long, spreading
out horizontally.

16. MEDICAGO.

1. *M. sativa* (purple Medick, or Lucerne), peduncles recurved,
legumes smooth spirally twisted, stipules entire, leaflets long
toothed, *Willd.* E. B. t. 1749.

Hab. Meadows and pastures, occasionally, about Glasgow, *Moqh.*, but
not indigenous. Fl June, July ♀

Stems 1—2 feet high. Leaflets entire below. Flowers purple. Smith
doubts if this be not a var. of *M. falcata*.

2. *M. lupulina* (black Medick, or Noddy), spikes oval, le-
gumes reniform 1-seeded, stipules entire, leaflets alternate.
Lightf. p. 412. E. B. t. 371.

A variable plant in appearance. Stems spreading. Flowers crowded,
small, yellow. Legumes ragged, almost black.

XVIII. POLYADELPHIA.

1. POLYANDRIA.

1. *Hypericum*. Cal. 5-merous. Pet. 5. Filaments many, united at the base, in 3—5 bundles. Caps. many-seeded, superior.

1. POLYANDRIA.

1. HYPERICUM.

* Style 5.

1. *H. calycosum* (large-flowered St. John's-wort), styles 5, flowers solitary, segments of the cal. unequal obtuse obtuse, leaves oblong, stem shrubby branched square. *R. B. i.* 2017. Has. Woods above Lough, perfectly indigenous, *Steph.* This is a native of Greece, not at all of the intermediate country, France, and I fear not really wild in any part of Britain. *R. B. July—Sept. 2.* Flowers very large, yellow. Diameter of stem 3,—A common ornament to clamberers.

* Style 3.

† Cal. segments entire at the margins.

2. *H. Andromedum* (Tutano), styles 3, capsule pulpy, stem shrubby compressed, cal. leaflets unequal, leaves on the inside. *Lichtf. p.* 418. *E. B. i.* 1235.

Has. Woods, but not very common. At Inverary, and at Loch Rannan in the lake of Argyll. It appears to be not uncommon on the western side of Scotland, though I have no stations indicated in the eastern parts. *R. B. July. 4.*

Two feet high. Leaves large. Cymes of rather large, yellow flowers, terminal. Berry black.

3. *H. quadrangulum* (square St. John's-wort), styles 3, stem herbaceous 4-angular somewhat branched, leaves ovate with pellucid dots, cal. leaves lanceolate. *Lichtf. p.* 416. *E. B. i.* 370.

Has. Moist pastures, sides of ditches and rivulets. *R. B. July. 2.*

One foot high. Flowers terminal.

4. *H. perforatum* (perforated St. John's-wort), styles 3, stem compressed, leaves elliptical-oblong obtuse with pellucid dots, cal. leaves lanceolate. *Lichtf. p.* 418. *E. B. i.* 285.

Has. Woods, thickets and hedges. *R. B. July. 4.*

One foot to two feet or more high, branched. There are minute black glands on the tips of the calyx, corolla, and often in the leaves.

5. *H. dilatum* (imperfected St. John's-wort), stem absolutely quadrangular, leaves elliptical-ovate obtuse destitute of pellucid dots, cal. leaves elliptical. *R. B. i.* 286.

Hab. Rather mountainous woods, rare. In a wood two miles from Lamsak, on the Hamilton road, *Sept.* Woods of Kupper Rose, near Dunblane, Mr. Murray. Woods, not rare, D. Ina, *Pl. July 2.*

Leaves more ovate than the last, and the cal. leaves especially. Cor. frequently with small black glands.

6. *H. humifusum* (trailing *St. John's-wort*), styles 3, flowers terminal corymbose, stem compound prostrate, leaves oblong obtuse glabrous. *Lighf. p. 418. E. B. t. 1226.*

Hab. Generally prostrate, but not common, Dr. Parsons and Sibbald Woods of the Kirk, at New-hall, and on the Frestland hills, *Wough*. Common about Glasgow, *see Mr. Murray.*

Stems slender, prostrate, about a span long. Cor. with black glands as well as the cal., on which they are frequently near the edge; but not so directly upon the margin as to form glandular serratures, in my specimens.

11 *Marguerite of the segments of the cal. fringed with glandular serratures.*

7. *H. montanum* (Mountain *St. John's-wort*), styles 3, flowers paniculate-corymbose, cal. with glandular serratures, stem erect rounded smooth, leaves ovate glabrous. *Lighf. p. 418. E. B. t. 371.*

Hab. Mountainous woods, but not common, Sibbald *Pl. July 2.* One foot and a half to two feet high. Leaves rather large, more or less perforated, distant, especially above; their margins with black glandular dots, those of the cal. and bracts distinctly serrated with them. Flowers rather compact.

8. *H. levissimum* (dwarfed *St. John's-wort*), styles 3, corymbis terminal, cal. fringed with long pedunculated glands, stem erect rounded, leaves ovate with (black) scattered dots beneath. *E. B. t. 1225.*

Hab. Woods near Aberlady in Strath-Earn, Perthshire, G. Don *Pl. Sept., Oct. 2.*

One foot or more high. Very distinct in the long glandular hairs of the margin of the cal. The petals two are often toothed at the extremity.

9. *H. hirsutum* (hairy *St. John's-wort*), styles 3, cal. with (black) glandular serratures, stem erect rounded pubescent, leaves ovate slightly hairy beneath. *Lighf. p. 418. E. B. t. 118.*

Hab. Woods and thickets, not very common. *Pl. July 2.*

Two feet high. Leaves rather large, more or less pubescent, especially beneath.

10. *H. pubescens* (small upright *St. John's-wort*), styles 3, cal. with (black) glandular serratures, stem erect, leaves cordate glabrous unperforated. *Lighf. p. 420. E. B. t. 1227.*

Hab. Dry woods and heaths, but not very frequent. 1 lb. of Lamsak, to the S. of Arnan, *Lighf. Frestland hills, Rosdlyn woods, &c., Wough, Agnes, Capt. Cornishall.* Frequent in chaggy pastures, *see*, about Glasgow, *Sept. Mr. Murray Pl. July 2.*

One foot to two feet high, slender, erect, rigid, branched. *Flowers* in loose panicles, bracteoid, yellow, tipped, before expansion, with red anthers red.

11. *H. elodes* (Marsh St. John's-wort), styles 3, cal. with (reddish) glandular serratures glabrous, leaves roundish pubescent, stem rounded creeping. *Light*, p. 419. *N. D. L.* 1858.

H. Bogi, but not common. *Isle*, for Joseph Bogie, Dutch by the road-side between Newnan-Salvator and Glenace, in Wigtownshire, about 4 miles from Glenace, Mouth. At Loch Rannay, and along the valley to Brodie in Argyr, Mr. Murray. *Fl. July*, Aug. 12.

A spike long. *Flowers* few, pedicel, terminal, pale yellow.

XIX. SYNGENESIA.

I. POLYGAMIA EQUALIS.

**SYMPLOSTICHUM*. Corolla all equal. (Coburn, Jan.)

10. *HIERACIUM*. *Receptacle* oblong, imbricated. *Receptacle* chafly. *Pappus* feathery, stipitate, or sessile.

12. *CINERARIUM*. *Receptacle* surrounded with scales or smaller bracts. *Receptacle* naked or slightly hairy. *Pappus* sessile, rarely, shorter than the pericarp.

9. *CASSIA*. *Receptacle* surrounded with deciduous scales and at length swelling into protuberances. *Receptacle* roughish, *Pappus* sessile.

3. *HIERACIUM*. *Receptacle* imbricated. *Receptacle* rarely naked, dotted. *Pappus* simple, sessile.

7. *ARABIS*. *Receptacle* imbricated, with scales at the base. *Receptacle* naked, dotted. *Pappus* feathery, sessile, unequal.

2. *PICTUS*. Cal. double, the inner equal, the outer lax. *Receptacle* naked. *Pappus* feathery. *Pericarp* transversely striated. (Pieris and Helminthia, Decond.)

1. *TRACOCLEON*. *Receptacle* simple, of many leaves. *Receptacle* naked. *Pappus* feathery, stipitate. *Pericarp* longitudinally striated.

6. *LEUCOCLEON*. *Receptacle* imbricated with scales that are frequently lax and decid. *Receptacle* naked. *Pappus* simple, stipitate.

4. *LACTUCA*. *Receptacle* imbricated, cylindrical; its scales with a membranous margin. *Receptacle* naked. *Pappus* simple, stipitate.

5. *FRANSTRUM*. *Receptacle* with scales at the base. *Receptacle* naked, *Pappus* simple, sessile. *Flowers* few.

3. *SOMNATA*. *Receptacle* imbricated, swelling at the base. *Receptacle* naked. *Pappus* simple, sessile.

11. *LAPATHA*. Involucre with scales at the base. Receptacle naked (the inner leaves equal, channelled, Sm.). Perianths distinct of pappus (deciduous.)

*** *CARYOPHYLL.* Corolla all tubular and generally spreading as in its form an hemispherical head. (*Caryophyllaceae*, Jacq.)

12. *CARLINA*. Involucre swelling, the ext. scales with numerous spines; the inner ones coloured, scarious. Receptacle chaffy. Pappus feathery.

13. *ANETHUM*. Involucre globose, each of its scales with an incurved hook at the extremity. Receptacle chaffy. Pappus simple.

14. *CANTHUS*. Involucre swelling, imbricated with spinous scales. Receptacle hairy. Pappus deciduous, roughish.

15. *CHOCOA*. Involucre swelling, imbricated with spinous scales. Receptacle hairy. Pappus deciduous, feathery.

17. *OSORORIDUM*. Involucre swelling; its scales spreading and spinous. Receptacle cellular. Pappus deciduous, rough.

14. *SMARAGDULA*. Involucre cylindrical, imbricated with scales that are not spinous. Receptacle chaffy. Pappus roughish or feathery, rigid, persistent.

(*Compositae Jacq.*, *POLYTR. PAVITA*.)

*** *DIACOSM.* Corolla all tubular, erect, crowded, forming a nearly level top. (*Corymbiflorae*, Jacq.)

20. *EVANTHIDIVM*. Involucre imbricated, oblong. Florets few. Receptacle naked. Pappus rough.

18. *BISSULA*. Involucre of many leaves, with many fillicious bristles at the base. Receptacle plane, chaffy. Cor. sometimes radiant. Perianths crowned with from 2—5 persistent awns, which are rough with minute deflexed bristles.

3. POLYGAMIA SUPERFLUA.

(*Corymbiflorae*, Jacq.)

* *DIANTHUS*. The rest of the Corolla obsolete.

21. *TARACANTHUM*. Involucre hemispherical, imbricated. Receptacle naked. Florets of the ray trifid, obsolete, sometimes swelling. Perianths crowned with a membranous margin on Pappus.

21. *COMPTA*. Involucre roundish, imbricated. Receptacle naked. Florets of the ray 2-dich. Pappus rough.

22. *GUARIALIVM*. Involucre imbricated, with (often) coloured membranous scales. Receptacle naked. Florets of the ray tubular; some of the disk occasionally aborting. Pappus rough.

22. *ASTRODIA*. Involucre ovate or rounded, imbricated. Re-

sepals naked (as downy, *Sua.*). Florets of the ray tubulate. Pericarp crowned with a membranaceous pappus.

(Triuligae *Polytrich* and *Alychids*. Sect. ^{***}.)

^{***} *Ranunc.* Corolla of the ray tubulate

33. *BELLIS*. Involucre hemispherical, its scales equal. Receptacle naked, convex. Pappus none.
34. *MAYADOLIA*. Involucre hemispherical or almost plane, imbricated with scales whose borders are membranous. Receptacle naked, almost cylindrical. Pappus none.
35. *CHRYSAETERIUM*. Involucre hemispherical, imbricated with scales whose borders are membranous. Receptacle naked. Pappus none.
36. *PERNETHIA*. Receptacle hemispherical, imbricated with scales whose borders are membranous. Receptacle naked. Pericarp crowned with a membranous margin.
37. *DOXOSTEMA*. Scales of the involucre in two equal rows, longer than the disk. Receptacle naked. Pericarp of the disk crowned with a simple pappus, those of the ray without a pappus.
38. *ISOLA*. Involucre imbricated. Receptacle naked. Florets of the ray very numerous, linear. Anthers with 2 lobes at the base. Pappus sometimes simply composed of hairs, sometimes double; the rest, membranous.
39. *EURODIA*. Involucre imbricated. Receptacle naked. Florets of the ray numerous, very narrow (mostly of a different colour from the disk). Pappus simple.
40. *SOLIMANO*. Involucre imbricated, its scales sessile. Receptacle naked. Florets of the ray (of the same colour as the disk) about 5. Pappus rough.
41. *ARCTIS*. Involucre imbricated, its lowermost scales spreading (except in *A. tropicalis*). Receptacle naked. Florets of the ray more than 10. Pappus simple.
42. *SEROTINUS*. Involucre subcylindrical, equal, only below; the scales withered at the tip. Receptacle naked. Pappus simple.
43. *TRIMELAS*. Involucre simple, equal, submembranaceous, swelling. Receptacle naked. Pappus simple.
44. *ANTHEMIS*. Involucre hemispherical; its scales nearly equal, their margins ciliate. Receptacle convex, chaffy. Pericarp crowned with a membranous border or pappus.
45. *ACHILLEA*. Involucre ovate, imbricated, unequal. Receptacle plane, chaffy. Florets of the ray 5—10, tubulate, divaricate. Pericarp naked.

(*Silene crenata*. Ord. 1. Sect. ^{***}.)

3. POLYGAMIA FRUSTRANEA.

(Cynanophale, Juss.)

38. CENTAUREA. Involucres only. Receptacle bristly. Corollae of the rays tubuliform, irregular, longer than those of the disk. Pappus simple.

1. POLYGAMIA ÆQUALIS.

* Scapifloratus

1. TRIGLOPOGON.

1. *Tr. pratensis* (yellow Goat's-head), involucre short as long as the ray, leaves undivided glaucous serrated channelled, peduncles cylindrical. *Lightf.* p. 429. *E. B. t.* 434.

Hab. Meadows and pastures, Dr. Fleming. Banks of the Clyde, at Clyde iron-works, *Blph.* Dalmon. Glasg., Dr. Brown. *Fl. Junc. 8.*

One foot to two feet high. Flowers yellow, showy; head of seed vessels very large. Pappus very hoary, elevated on long stalks.

2. *Tr. porrigifolius* (purple Goat's-head), involucre much longer than the ray, leaves undivided straight, peduncles thickened upwards. *E. B. t.* 438.

Hab. Moist meadows about Glasg., very rare, *Blph.* *Fl. May, June 8.*

Three to four feet high. Flowers purple. The root was formerly cultivated for culinary purposes.

2. PICHIA.

1. *P. Alenacoides* (Hawthorned Ox-tongue), exterior scales of the involucre short lax, leaves very rough lanceolate toothed, stem scabrous, pappus simple. *E. B. t.* 196.

Hab. Road-sides and borders of fields, frequent. *Fl. July, Aug. 8.* Stem 2—3 feet high. Flowers yellow, corymbose, peduncles with siliceous scales. The English *P. scolioris* has very large outer scales or bracts to the involucre.

3. SONCHUS.

1. *S. oleraceus* (Wine Soap-thistle), "peduncles and involucre blisped succulent, leaves elliptic, terminal lobe deltoid very large," *Sm.* *E. B. t.* 342b.

Hab. Tops of Loch-na-gao, Aberdeenshire, and on the Clons mountains, rare, *G. Bosc.* *Fl. July, Aug. 8.*

Stem three feet high. Racemes long, of numerous black flowers. Peduncles, involucre and leaves covered with reddish resinous scales.

2. *S. asperatus* (Cure Soap-thistle), peduncles and involucre limpid umbellate, leaves moderate dentate-ovate cordate at the base. *Lightf.* p. 427. *E. B. t.* 674.

Hab. Cure-lands, frequent. *Fl. July. 8.*

Stem 3—4 feet high. Flowers large, yellow.

2. *S. alabrum* (common *Sea-thistle*), peduncles subterminal umbellate, involucres glabrous, leaves crenate dentate-oblate emplexiform at the base. *Lightf.* p. 428. *E. B. t.* 843.

Hab. Wet places and cultivated ground, common. Fl. June, Aug. '3.

Two to three feet high. Flowers rather small, yellow, occasionally white, according to Mr. Newport.

4. LACTUCA.

1. *L. virosa* (strong-headed *Lettuce*), leaves oblong toothed horizontal their base prickly their apex obtuse. *Lightf.* p. 429. *E. B. t.* 1957.

Hab. Rocks and way-sides, but rare. Foot of Arthur's Seat, Edinb., *Lightf.* Dunkeld, Mr. Murray. Fl. Aug. '8.

Stem 3—4 feet high, erect, prickly, with distant leaves, parallel at the summit. Leaves finely toothed, embracing the stem, reflexed when mature, crenate.—Abundant with a milky and narcotic juice, which has been considered by some as a gentle cathartic opiate. Flowers small, yellow.

5. FRENANTHES.

1. *Fr. maritima* (Key-leaved *Lettuce*), corolla 5, leaves bipinnatifid and toothed, the terminal lobe with about 5 angles. *Lightf.* p. 431. *E. B. t.* 457.

Hab. On shaly rocks and walls of old castles in the Lowlands, *Lightf.* Fl. July '2.

Stem two feet high, branched at the top, with the branches spreading. Flowers small, yellow.

6. LEONTODON.

1. *L. Taraxacum* (Dandelion), water scales of the involucre serrated, leaves crenate glabrous toothed. *Lightf.* p. 432. *E. B. t.* 510.

Hab. Meadows and pastures, abundant. Fl. in the summer. W. Leaves all radical, their segments more or less deep. Stems with a large single flower.

2. *L. palustre* (Marsh Dandelion), water scales of the involucre erect appressed, leaves sinuate-dentate nearly glabrous. *E. B. t.* 532.

Hab. Portland hills, Mr. Mungton. Roushyn woods, also bog near Edinb., Mr. Grenville Marches, Angus-shire, Mr. G. Den. W. Leaves about 6 long, not uncommon, *Lightf.* Fl. June, July '2. Very nearly allied to the preceding, and was for a long time, perhaps partly, considered as merely a var. of it.

7. APARGIA.

1. *A. bipida* (rough *Apargia*), scape single-flowered, leaves dentate scabrous, "fierce-hairy" at their axilla glandular at the

Sp., *Sm. Lightf.* p. 423 (*Leontodon hispidus*). *E. B.* t. 514 (*Hedysarum hispidum*).

Hab. Meadows and pastures, frequent. *Lightf.* Pl. June. *W.*

Leaves radical, oblong, lanceolate, more or less deeply toothed, sometimes almost pinnatifid, clothed with forked hairs. Flowers solitary, upon a hairy scape, large, yellow, drooping before expansion. Involucre hairy.—Dr J. E. Smith says that the hairs at the axilla of each flower distinguish this plant from *A. hirs.*, as well as from every other species of the genus.

2. *A. hirs.* (*deficient Apocyn.*), scape single-flowered, leaves dentate serrulate, involucre nearly glabrous, outer pericarp with a sticky pappus. *E. B.* t. 555.

Hab. Generally pastures and moorland at Gleng, occasionally, moor about Uist, Hebrides. North Queensland, Abingdon. *W.* July, Aug. *W.*

This species was by *Lightf.* and many of the older botanists confounded with the last, but it is really very distinct from it—the flowers are much smaller, sessile beneath, and there is a great peculiarity in the outer seed-vessel, they not having a pappus composed of hair-like processes, but of rough membranous scales.

3. *A. Taraxac.* (*alpinum Apocyn.*), scape single-flowered thickened upwards, leaves glabrous renunciate-dentate, everywhere very hairy. *Lightf.* p. 421 (*Astracium Taraxac.*). *E. B.* t. 1109 (*Hedysarum Tarax.*).

Hab. Wet ground on the sides of the Highland mountains, as on Ben-ne-Cullach in North-Sutherland. *W.* July, Aug. *W.*

Remarkable for its scape, which is thickened upwards, and having there, like the involucres, blackish hairs. Flowers rather large, yellow.

4. *A. autumnale* (*alpinum Apocyn.*), scape branched only upwards, leaves lanceolate toothed or pinnatifid subglabrous, peduncles swelling beneath the involucre. *Lightf.* p. 423 (*Leontodon autumnale*). *E. B.* t. 620 (*Hedysarum autumn.*).

Hab. Meadows and pastures, frequent. Pl. Aug. *W.*

Scapes cylindrical, and tapering down gradually into the scape. Flowers rather large, yellow.

8. HIERACIUM.

* Scape naked (or rarely with one leaf), single-flowered.

1. *H. alpinum* (*alpinum Hieracium*), scape 1-flowered leafless hairy, as well as the oblong-lanceolate entire leaves, involucre thickly clothed all over with long silky hairs. *Lightf.* p. 424. *E. B.* t. 18. *E. B.* t. 1110.

Hab. Dry soil near the summit of the Highland mountains, as in Broadlands and Gleniva, Dr. Anders. In Juncoblar and in Skye, *Lightf.* On Ben Arthur, opposite Arrigdale, Mr. Bower and Good. Pl. July, Aug. *W.*

Four to six inches high. Leaves with subulano-silky hairs, especially at the base, which is lengthened into a pappus. Hairs on the upper part of the stem black at the base, and often mixed

with minute black glandular hairs. Involucres thickly clothed all over with dingy coloured or fulvous long silky hairs, which characteristically distinguishes this species. Flowers always solitary, large, deep yellow.

2. *H. Halleri* (*Hallerian Flowerweed*), scape 1-flowered with one or rarely two leaves hairy, as well as the spatulate-lanceolate toothed leaves, involucres with rather long silky hairs principally near the margins of the scales. *Donnd. Fl. Gall.* p. 353. *H. panicum*, *Willd.* (according to Seringe). *H. villanum*, *E. B. & C.* 3379 (garden specimen), but nearly not of *Linn.*

Hab. Green Mountains and Ben Lomond, *G. Don*. Ben-p-Moie near Kilm. Mr. Farmer and Black. *Fl. Ang. W.*

Much like the last, for which I mistook it myself when I gathered it on Ben-p-Moie; but on comparing numerous specimens of the two I am disposed to keep them distinct. The present is rather the taller of the two, and stouter, there is always one leaf at least upon the scape, the leaves are toothed, and the involucres have the back of the scales demonstratively destitute of those long, beautiful, silky hairs which are so characteristic of *H. alpe*—all have never seen either of these two species with more than one flower. Both are abundant in Switzerland, and retain the characters above given to them.

3. *H. Pabstii* (*Pabstian Flowerweed*), scape one-flowered naked, leaves entire elliptico-lanceolate hairy beneath, scales creeping. *Lepelt. p.* 423. *E. B. & C.* 1469.

Hab. Banks and dry pastures, common. *Fl. Franc. Y.*

Distinguished at all times by the creeping scales, the leaves, which are divaricate beneath, and serrated all over, especially at the margin, with long rather rigid hairs, and the pale yellow colour of the flowers. Scape more or less downy, and with glandular scattered hairs.

** Scape naked (or rarely with a single leaf), many-flowered

4. *H. dubium* (*doubtful Mouse-ear Flowerweed*), scape many-flowered naked (or with one small leaf), leaves entire elliptico-lanceolate with only a few scattered hairs, scales creeping. *E. B. & C.* 3332.

Hab. Scotland, Mr. G. Don, and received from that country at the Cambridge Bot. Garden. See in *E. B. Fl.* July, Aug. '4.

Taller and slenderer than the last, with smaller flowers, from 2-4, at the apex of the scape, on longish toothed leaves, which as well as the upper part of the scape are pubescent and subglabrous. Leaves sometimes almost glabrous, often hairy, especially towards the base and on the edges. Can the *H. striviale* of Smith be a var. of this?

5. *H. aurantiacum* (*orange-coloured Flowerweed*), scape usually naked simple hairy bearing a corymb of many flowers, leaves obovato-lanceolate coarse rough with longish hairs. *E. B. & C.* 1493.

Hab. Several woods in Friesland; and at Crispiton in the neighbourhood of Turf, *G. Don* in *E. B.* Cuckston woods, E. Lothian,

Mr. Waller. Woods to the westward of Kenmore, Moagh. *H.* July. *M.*

One foot high, spreading out creeping stems from the root. Leaves more or less hairy, with usually tubercle hairs. Stems very hairy, hairs, on the upper part, black at the base, as they are upon the involucres, sometimes all black. Flowers very deep orange colour, in a more or less rounded corymb.

*** Stem with few (1—2) leaves, many-flowered.

6. *H. Lencomei* [glabrous hairy *H. hederacea*?], stem more or less branched upwards where it is the most hairy and the hairs mixed with black glands having 1—2 sessile leaves, radical leaves ovate-lanceolate petioles entire or toothed towards the base hairy especially on the petioles, involucres with hairs which are black at the base mixed with black pedunculated glands.

a. leaves lanceolate shortly petioled nearly entire with 3—5 flowers. *H. Lencomei*, *E. R. i.* 2063.

β. leaves broadly ovate-lanceolate nearly entire upon long petioles, 2—4 flowers. *H. scutellifolia*, *Desfont. Fl. Gall.* p. 219.

γ. leaves largely ovate-lanceolate deeply toothed towards the base, flowers solitary.

HAB. *a.* First of Ben Cruchan, Mr. Burrey and Hook, Rock, in Corrie Cruchan, Mr. Burrey.—*β.* Dry rocks on the summit to Ben Lomond from Tiber, about half way up, Hook.—*γ.* Rocks on Ben Lomond and the Clova mountains, C. Don. *H.* Aug. *M.*

My specimens, gathered at Ben Cruchan, perfectly accord with the figure in *E. R.*, allowing for that being taken from a cultivated specimen. Leaves sometimes spotted with purple, very villous with long white hairs on the petioles. Stems rarely bearing any flowers (and then coming very near *H. hederacea*), usually divided about the middle into 3—4 branches, 6—10 inches high, very hairy, the upper part with rigid whitish hairs black at the base and mixed with black glandular bristles. Involucres hairy in the same way. Flowers rather large, yellow.

7. *H. maritimum* (Willd. *Hederacea*?), stem branched upwards sub-corymbose downy especially beneath the involucres where are a few black glands having 1 petioled leaf, radical leaves ovate or lanceolate entire or dentate at the base hairy, as well as the longish petioles, involucres downy.

a. leaves broadly ovate toothed at the base. *H. maritimum*, *Egghj.* p. 437. *E. R. i.* 2062.

β. leaves lanceolate more or less toothed often spotted or clouded with purple. *H. polymorpha*, *E. R. i.* 2063.

HAB. *a.* In woods, on walls, and on rocks, common.—*β.* Rocks in the Highlands, half way up Ben Lomond from Tiber, along with *H. Lencomei* *β.*, Hook. Glen Nevis, near the bridge. Mr. Burrey, Highland mountains, not uncommon, C. Don. *H.* Aug. *M.*

It is very difficult to draw the line between this species and the neighbouring one (*H. muric.*), which may indeed be said of almost every individual in the genus. The present is from 4 or 5 inches, in poor soils, to 3 feet in height. The stem wants the long whitish hairs of the last species and is only closely pubescent at the extremity, where there are sometimes a few black glandular bristles. The roots are less than some other pale ones. The leaves vary wonderfully in breadth and in distribution as well as in hairiness, though they are always less hairy than those of *H. Linnæi*, especially about the petioles. There is one rather large and more or less petiolated leaf on the stalk, rarely one or two small ones above.

Roots with many leaves, many-flowered.

3. *H. spheerium* (*Wald* *Haukner*), stem many leaved branched upwards and subspherical slightly hairy and more or less downy beneath the involucre, leaves ovate-lanceolate or lanceolate toothed with the sharp teeth pointing upward somewhat hairy, involucre with very short pubescence.

a. leaves ovate-lanceolate green with small teeth. *H. sphaerium*, *E. B. t.* 2031.

β. leaves ovate-lanceolate green deeply toothed at the base, *H. ramosum*, *Waldl.* and *Kit. Fl. Hung.* *D. Don*, MSS. ined.

γ. leaves ovate lanceolate spotted with dark purple with large teeth. *H. maculatum*, *E. B. t.* 2123.

δ. leaves lanceolate spotted and streaked with purple. *H. pictum*, *Schleich.*

HAB. a. Mountainous woods, frequent; about Lantz, *Alph. Wals.* rocks, and dry woods, not rare, *D. Don*. Woods near Llanabwys and Strathmore, Mr. Murray. β. Brought many years ago from Scotland by Mr. Dickson, and cultivated by Mr. E. Foster. Bushy places in Scotland, *D.* and *G. Don*. γ. Fir wood E. of Perth, *G. Don*. δ. Woods near Perth, *G. Don*. Loch River, *Dickson*. Fall of the Ayr 2 m. above lower Ayr, and at lower Moniston, Mr. Borrer. *Fl. Aug.* 2.

One foot to two feet high, scarcely hairy on the stem, though in the var. β. found by Mr. Dickson the lower parts of the stem and of the petioles of the leaves have long hairs, while that var. (δ.) found by Mr. Don is very nearly glabrous. The leaves are usually numerous, yet I have seen some stunted ones which had so few that it was difficult to recognise them as distinct from *H. muric.*

3. *H. divaricatum* (*small-toothed Haukner*), "stem erect many-flowered solid, leaves sessile elliptic-lanceolate sharply toothed underneath glaucous beneath, bracteolæ glandular and rotund," *Sax.* *E. B. t.* 2122.

HAB. Loch Rannoch, Perthshire, and among heath on the banks of the Forth, *G. Don*. Sticks of the Clyde at Dalkrois with *H. lanceol.*, *Alph. Fl. Aug.* 2.

" Stem 2 feet high, erect, round, striated, roughish, spongy, and velvety, scarcely furrowed within" (Sm.). I have never seen a specimen of this, and therefore quote Smith's character. It is the *H. pratensis* of *Pt. Brit.*; not of Compton, of 3 p. 118.

10. *H. ovale* (soft-leaved Hawkweed), stem parallel fibrous, leaves lanceolate distinctly toothed semispherical, lower ones petiolate very obtuse. *E. B. t.* 2210. *H. verticillatum*, Decand. and Seringe.

Hab. Woods in the south of Scotland, Dichen. Among bushes in meadows N. of Forth, G. Don. Lower hill of the Tummel, Glen Luss, Mr. Barrer. Fl. July, Aug. 2.

I have never seen British specimens of this, but my Swiss ones precisely agreed with the figure in *E. B.* The plant is about one foot high, remarkable for the obtuse radical leaves, which taper gradually into a long petiole. Sides of the involucre with a few black glandular hairs.

11. *H. pulchellum* (swoony-leaved Hawkweed), glabrous, stem parallel fibrous, leaves ovate-oblong acute toothed reflecting the stem with short heart-shaped base, scales of the involucre with black hairs or bristles. *Lichtf.* p. 538. *E. B. t.* 1094.

Hab. Sides of rivers and in wet and rocky places, abundant. Fl. Aug. 2.

One foot to two feet high. Readily known by the absence of all pubescence, the very amplicornal leaves, and their spreading or declined teeth, together with the root, which has longish, quite black hairs.

12. *H. corymbosum* (flaxy-wool-leaved Hawkweed), stem corymbose hairy short, leaves hairy very slightly toothed radical ones oblong-obovate petiolate cauline ones oblong semispherical, involucre hairy. *E. B. t.* 2275.

Hab. Rocks near the head of Clon, G. Don.

One to one foot and a half high, rather rare.

13. *H. amplicornale* (amplicornal Hawkweed), glabrous-amplicorn, stem corymbose, leaves toothed, radical ones oblong-obovate petiolate, cauline ones cordate, at the base amplicornal. *IFWd.* Sp. Pl. p. 1562. *Alt. Ped.*

Hab. Walls of the castle of Clon, Kinross-shire, Mr. Barrer. Mr. Barrer possesses specimens from G. Don, gathered on the Clon mountains Fl. Aug. 2.

This interesting addition to the British Flora has many points in common with the last species, but is every where covered with brownish glandular hairs, most thickly on the petioles and involucres. The lower cauline leaves are more or less oblong, the upper ones truly cordate.

14. *H. pinnatifidum* (rough-bordered Hawkweed), "stem erect many-flowered, leaves amplicornal somewhat toothed rough at the margin lower ones oblong, petioles downy,"

Sm. *E. B. t.* 2223.

Hab. Brought from Scotland by Mr. Dickson. Banks of the Esk, near the farm called the Crag, near Forth, G. Don. Near Perth, Mr. Mackay. Fl Aug. ♀

" Differs from *R. dracunculoides*, with which it was confounded in Fl Brit, in having the leaves embrace the stem by their rounded dilated base, and in their margins near the edge, which there form a bristly border. These marks are enough to distinguish them." Sm. in R. R.

15. *R. subciliatus* (strawberry Hawk's-head), "stem erect many-flowered, leaves ovate-lanceolate dentate-serrate half embracing the stem hairy beneath, the lower ones elliptico-lanceolate," Sm. Lightf. p. 438. E. B. t. 348.

Hab. Woods and rough stony places, Lightf. Sides of rivers, frequent, about Glasgow, Mph. Fl Aug. Sept. ♀

" Two to three feet high, somewhat straggly, rough, rigid" Sm.

16. *R. undulatus* (narrow-leaved Hawk's-head), stem erect simple very leafy, leaves linear lanceolate subglabrous slightly toothed, flowers subumbellate, peduncles downy, involucre glabrous. Lightf. p. 439. E. B. t. 1771.

Hab. Rough stony places, but not very common. King's Seat at Dunfield, Lightf. Fl Aug. Sept. ♀

The most decidedly marked perhaps of any individual in this most difficult genus—Scotland produces every British species, except the doubtful *R. maritima*: it is then to the botanists of this country, who live, as it were among them, that a more satisfactory history of these plants should be looked for.

F. CREPS.

1. *C. pulchra* (small-flowered Hawk's-head), "leaves pubescent toothed those on the stem subangulate, stem pubescent corymbose, involucres pyramidal glabrous," Sm. E. B. t. 2235. *Prunella pulch.*, Decand.

Hab. Crumbling rocks on the hill of Tyne, near Forth, Mr. G. Don. Fl June, Sept. ♂

Radical leaves oblong, toothed, tapering downward; umbels ones very few, small, clasping the stem with their toothed base—Sir J. E. Smith observes that the scales of the involucre are not deciduous, nor does the involucres itself satisfactorily accord with the genus. Hence Decandolle has placed it in that of *Prunella*.

2. *C. incerta* (smooth Hawk's-head), leaves glabrous runcinate, the upper ones linear-angulate amplicurved, stem glabrous, panicule subcorymbose, involucre pubescent. Lightf. p. 442. E. B. t. 1111.

Hab. Meadows, pastures, and upon tiled and thatched cottages. Fl July, Aug. ♂

Stems 1—3 feet high. Radical leaves more or less pinnatifid or runcinate; their teeth or segments often horizontal, sometimes curved upwards. Flowers small, yellow.

10. HYPOCHERIS.

1. *H. maculata* (spotted Cat's-ear), stem almost leafless suffrag, leaves ovate-oblong undivided toothed (spotted above), *E. B. t.* 223.

Hab. Dry woods E. of Forth, & Don. Fl. July. Y.

Leaves almost all radical, scarious. Stem or scape with 2—3 lanceolate scales or bractlets, and, as well as the involucre, slightly beaded. Flowers solitary, large, deep yellow.

2. *H. glabra* (smooth Cat's-ear), nearly glabrous, involucre oblong lobed-lanceol, stem branched somewhat leafy, radical leaves dentate-serrate. *Lichtf.* p. 442. *E. B. t.* 372.

Hab. Mountainous pastures and generally scrub, but not common, *Lichtf.* Fl. July, Aug. ☉.

A foot or more in height. Leaves oblong, slightly hairy. Flowers small, yellow. Pappus of the central flower stipitate, that of the circumscissure sessile.

3. *H. reticulata* (long-rooted Cat's-ear), stem branched leafless glabrous, peduncles with small scales, leaves reniform obtuse scarious. *Lichtf.* p. 443. *E. B. t.* 381.

Hab. Meadows and pastures, common. Fl. July. Y.

Leaves all radical, spreading. Stem a foot or more high. Peduncles a little thickened upwards. Flowers rather large, yellow. Pappus stipitate.

11. LAPSANA.

1. *L. communis* (Nipple-wort), involucre of the fruit angular, stem pinnatifid, peduncles slender, leaves ovate petiolate angulate-dentate. *Lichtf.* p. 444. *E. B. t.* 846.

Hab. Waste and cultivated ground, common. Fl. July, Aug. ☉. Stem 2—4 feet high. Leaves soft and thin, slightly hairy, the radical ones more or less hairy. Flowers small, yellow.

2. *L. riviniana* (short Nipple-wort), scape branched very thick and fistulose upwards, leaves oblong-oblong toothed. Desf., *Fl. Gall.* p. 254. *Lichtf.* p. 443, and *E. B. t.* 93 (*Hypocis riviniana*). *Laplace paille, RYBd.*, and Sm. *Comp. prod. Fl. Brit. ed. 2.* p. 119.

Hab. Corn-fields in a gravelly or sandy soil, but rare, *Silfield.* Fl. June, July. ☉.

Scape 4—8 inches high, more or less branched, remarkable for their clavate and beak-like extremities. Flowers small, yellow.

12. CICHORIUM.

1. *C. Intybus* (wild Scurry), flowers sessile solitary in pairs, leaves reniform. *E. B. t.* 329.

Hab. Borders of fields and waste places, but rare. In a field near Forth, Edinb., *Mugh.* Borders of corn-fields in several parts of the Marne, *Foug. Beattie.* Field near Belvedere and one near Tullerose, *Giang.* Field in Kinnoullshire, *Mr. Grenville.* Scattered about the country, *Mr. Arnott.* Fl. July, Aug. Y.

Stem 1 foot to 2 feet high, erect, branched. *Flowers* numerous, large, bright, but pale blue. Not the *Edulis* or *harveyi* of the gardens, which is *Cich. Indica*, supposed to be a native of India.

** Captive.

13. ARCTIUM.

1. *A. Lappa* (common *Bandool*), leaves cordate petiolate, *Lichtf.* p. 445.

a. cal. glabrous. *E. B. t.* 1228 (*Arctium Lappa*).

β. cal. with a cobweb-like down. *E. B. t.* 1158 (*Arctium Bandool*).

Hab. Waste places and way-sides, frequent. *Fl* July, Aug. *St.*

Two to three feet or more high. Radical leaves very large, often deeply toothed. Cal. globose, with spines, hooked scales, which stick most persistently to clothes and the coats of animals. These scales are sometimes glabrous, and sometimes have a more or less abundant cottony substance interspersed with them, whence two species have been established by some authors. *Flowers* purple.

14. SERRATULA.

1. *S. heterota* (common *Saw-wort*), leaves sharply serrated glabrous; the terminal lobe the largest, flowers in a small clustered umbel. *Lichtf.* p. 447. *E. B. t.* 38.

Hab. Woods and wet pastures, but not common, *Lichtf.* Banks of the Clyde between Dalkeith and Edinburgh, *Reph.* *Saw-wort*, near the mouth of the Don, Galloway, and between the Nairney and Spey, in the parish of Banquo, Dr. Walker. *Fl* Aug. *St.*

Two to three feet high, branched, stiff. *Flowers* purple. *Stems* clothed with a yellow colour.

2. *S. sylvia* (*sylvia* *Saw-wort*), leaves ovate-lanceolate attenuated at the base undivided toothed cottony beneath, serrature sharp, flowers in a clustered umbel. *Lichtf.* p. 445. *t.* 19. *E. B. t.* 589.

Hab. Sides of the highland mountains, among rocks; in Breadalban, Glen Lyon, Glenmore, and in Skye; also near Moffat, in Annandale, *Lichtf.* Ben Arthur, by Annapur, Mr. Barrer and Hook. Mountains in the Isle of Rum, and in a deep valley at the foot of White Cairn Edge, Annandale, Dr. Walker. *Fl* Aug. *St.*

Stem 8—12 inches high, erect, simple, woody. Leaves few upon the stem. *Flowers* larger than in the last-mentioned species, purple.

15. CARDUS.

* *Leaves decurrent.*

1. *C. marian* (*York-distle*), leaves decurrent spinous, flowers drooping, scales of the involucre lanceolate cottony, outer ones spreading. *Lichtf.* p. 456. *E. B. t.* 1112.

Hab. Waste places near towns, and in dry pastures and rough stony soils. *Fl* July, Aug. *St.* (*Q. Sm.*)

Two to three feet high, not much branched, cottony, interruptedly

winged. Leaves oblong, deeply sinuated. Flowers solitary, large, handsome, purple, said to emit powerfully of musk in warm weather: most so in the evening according to Light.

3. *C. arvensis* (washed Thistle), leaves decurrent sinuated spinous, involucre globose usually acute its scales linear slightly recurved. *Lightf.* p. 432 (*C. crispus*). *E. B.* t. 373.

Hab. Waysides and waste places, varying with white flowers. *R.* June, July. ☉

Three to four feet high, continuously winged, branched. Flowers clustered at the ends of the branches, deep purple.

3. *C. tenuiflorus* (slender-flowered Thistle), leaves decurrent sinuated spinous somewhat cottony beneath, involucre nearly cylindrical clustered acute their scales lanceolate erect. *Lightf.* p. 432 (*C. tenuiflorus*). *E. B.* t. 412.

Hab. Waste places near towns, especially by the sea-coast. Abundant about Edinb., Monkh. About Dublin, near Ulrag., May. *R.* June, July. ☉

Two to four feet high, winged the whole way up the stem with the decurrent bases of the leaves. Flowers small, pale purple.

** Leaves erect.

4. *C. marianus* (Milk-thistle), leaves amplexicaud waved spinous, the radical ones pinnatifid, scales of the involucre subobovate recurved spinous at the margin. *Lightf.* p. 434. *E. B.* t. 376.

Hab. Banks and waste places about towns and villages. Coastal rock at Edinb., Dr. Paterson. King's Park, Edinb., Monkh. Back of Dunbarian castle, Monkh. &c. *R.* July. ☉

Three to five feet high. Distinguishable at once by the silky veins on the leaves and the gray recurved scales of the involucre.

18. CNIUS.

* Leaves decurrent.

1. *Cn. lanceolatus* (Spear-thistle), leaves decurrent bright pinnatifid their segments generally two-lobed spreading spinous, involucre acute tomentose their scales lanceolate spreading. *Lightf.* p. 450, and *E. B.* t. 109 (*Cordula lance.*).

Hab. Waysides, frequent. *R.* July, Aug. ☉

Three to four feet high. Leaves downy beneath; point long, very sharp. Flowers standing singly, large.

2. *Cn. polystrius* (Marsh-thistle), leaves decurrent scabrous pinnatifid spinous, involucre acute clustered their scales ovate-lanceolate mucronate appressed. *Lightf.* p. 452, and *E. B.* t. 974 (*Cordula pol.*).

Hab. Moist meadows and shady places, frequent. *R.* July. ☉

Four to six feet high, very full of rather short spines, very erect. Remarkable for its clustered heads of flowers, whose involucre have the scales broad, appressed, keeled, and mucronated.

** *Lower series.*

3. *Cn. arvensis* (*creeping Thistle*), leaves sessile pinnatifid spinose, stem pinnatifid, involucre ovate, scales appressed mucronated. *Lightf.* p. 449 (*Serratula ar.*). *E. B.* t. 975 (*Carduus ar.*).

Hab. Fields and by way-sides, too abundant. Fl. July. $\frac{1}{2}$.

One foot to three feet high. Stems angular, but not winged.

4. *Cn. arvensis* (*creeping Thistle*), leaves sessile pinnatifid every other segment pointing upwards spinose scabrous, involucre spherical woolly. *Lightf.* p. 454, and *E. B.* t. 266 (*Carduus arvensis*).

Hab. Road-sides, &c., but rare. Sea-side between Blackness and the Queensferry? *Schell.* Road-side near Greenock Castle and Chertoftall, 8 m. from Kilmory, Moray. Dunbarton Castle? Mr. Murray. Arden, Capt. Carmichael. Fl. July. $\frac{1}{2}$.

Stems much branched, 2 feet high, the lowest of the grass harvested. Leaves acuminate, white, and downy beneath, the lobes alternately pointing upwards and downwards, and terminated with sharp spines, beneath very large, its scales linear, mucronate, very much intercrossed with a woolly substance.

5. *Cn. heterophyllus* (*melancholy Thistle*), leaves amplicaulous lanceolate ciliate-dentate undivided or laciniate white and downy beneath, flowers mostly solitary. *Lightf.* p. 456 (*Carduus heterophyllus*), and p. 467 (*Carduus heterostichus*). *E. B.* t. 675 (*Carduus heteroph.*).

Hab. Marshy places and on wet hills, especially in the Highlands. Roslyn and Ainsliebury woods, Moray. Dalrobin, near Glasgow. Dr. Brown. Fl. July. $\frac{1}{2}$.

Two to three feet high. Stems striated, red, as well as the underside of the leaves, covered with a white, cottony down. Leaves mostly radical, and three pinnatifid. Beneath oblong, dark green, its scales lanceolate, acuminate, but not spiny.

6. *Cn. pratensis* (*Meadow Thistle*), leaves sessile lanceolate waved at the edge and unequally spinose pubescent cottony beneath, flowers mostly solitary. *E. B.* t. 177.

Hab. Moist pastures in Loch-an-dubh, Isla, Dr. Walker. I think Mr. Murray brought an indifferent specimen of it from Arden. Fl. July. $\frac{1}{2}$.

About 1 ft. high. Leaves waved, toothed and spiny. Flowers solitary, scales of the involucre with short spines, lanceolate, closely imbricated.

7. *Cn. ovata* (*downy Thistle*), stemless, involucre globose. *Lightf.* p. 453, and *E. B.* t. 141 (*Carduus ovata*).

Hab. Dry pastures, but not common. Fl. July. $\frac{1}{2}$.

Leaves spreading, close to the ground, oblong, pinnatifid, the segments lobed and spinose, glabrous. From the centre of these leaves arise 1 or more, deep purple flowers. Involucre obovate-spherical, imbricated with closely placed, appressed, lanceolate, acute, greenish scales, not spinose.

17. ONOPORDUM.

1. *O. Acanthium* (Cotton Thistle), stems of the involucres spreading subulate, leaves ovate-oblong serrated and spinose decurrent mostly on both sides. *Lightf.* p. 458. *E. B.* t. 977.

Hab. Waste places near towns and villages, as at Worms on the coast of Fife and half a mile beyond Preston Pans, &c. *Lightf.* Field close by the village of Cockenzie, near Melrose; and Links at Port Seton, Mough. Near Marchburgh, *St. Andrew.* *R. Aug.* *f.*

Four to six feet high, branched and winged to the summit. Wings very spinose. Involucres globose. Flowers purple.

18. CARLINA.

1. *C. vulgaris* (common Carduus), stem many branched corymbose pubescent, leaves lanceolate unequaly spinose and serrated downy beneath. *Lightf.* p. 460. *E. B.* t. 1164.

Hab. Dry hilly pastures, but not very common, *Lightf.* Near Abernethy, *St. B. Stewart.* Coast of Angus-shire, *St. B. Don.* Coast of Galloway, near Glenburn, and heights of St. Cyrus, near Montrose, Mough. *R. June.* *f.*

One foot high. Very spinose, but the spines generally short. Exterior nodes or bases of the involucres much resembling the leaves, but smaller, more acute than the membranous, yel. glauc. scales, forming a horizontal ray round the florets. Flowers purplish. Stalks with 2 bristles at the base.

*** Diacotis

19. DUCENS.

1. *D. arvensis* (cocking Bar-Marigold), flowers drooping, bracts lanceolate entire (longer than the involucres), leaves lanceolate serrated undivided, bristles of the pappus about 4 erect. *Lightf.* p. 461. *E. B.* t. 1114.

Hab. Sides of rivulets, ditches, and lakes, frequent. *R.* June—Aug. ☉

One to two feet and more high, branched, slightly leafy. Leaves glaucous, deeply serrated. Flowers large, greenish yellow.

2. *D. separiata* (stiff Bar-Marigold), leaves tripartite, bracts lanceolate deeply serrated, bristles of the pappus 2—3. *Lightf.* p. 462. *E. B.* t. 1113.

Hab. Marshy places and sides of lakes, *Dr. Fergus.* Keweenaw-shire, *St. Andrew.* Rare about Glasgow, edge of a loch near New Kilpatrick, *R. side.* *High.* *R. July.* ☉

Readily distinguished by its tri- and sometimes quinque-partite leaves. The flowers, which are slightly drooping, are also smaller than those of *D. arvensis*.

20. RUPATORIUM.

1. *R. cuneatum* (Hemp-Agrimony), leaves opposite sub-petiole to tri-angulo-partite their segments lanceolate deeply serrated. *Lightf.* p. 464. *E. B.* t. 438.

Hab. Banks of stream and hills, not infrequent. In Clinton-lago and among rocks below Ringhouse, Dr. Parsons. Laurels, Dr. D. Stearns. Apple, Capt. Cornshead. Rare about (Clay); mostly place in Cornshead wood, abundant, Mich. Fl. Aug. 23.

Stems 2—4 feet high, branched. Leaves pubescent, their middle like the longest. Flowers very numerous, thickly crowded in terminal cymes of a pale reddish purple. Style longer than the cor., deeply cleft. Plant slightly aromatic.

2. POLYGAMIA SUPERFLUA.

21. TANACEUM.

* *Diagnosis.* Corolla of the ray obsolete.

1. *T. vulgare* (common Taney), leaves bipinnatifid lance-ovate. *Lightf.* p. 453. *E. B. t.* 1223.

Hab. Borders of fields and road-sides, not uncommon, especially about (Clay). Fl. Aug. 2.

Stems 1—3 feet high, erect, slightly branched. Flowers yellow, in a terminal cyme. Rays of the ray very few, ligulate, moderate. Whole plant very bitter and aromatic. It has been much used for medicine, and also is domestic economy is an ingredient of puddings.

22. ARTEMISA.

1. *A. maritima* (drooping-flowered Sea Wormwood), "leaves downy pilose the uppermost undivided, succinate drooping, receptacle naked, flowers oblong sessile," *Sm.* *Lightf.* p. 455. *E. B. t.* 1701.

Hab. Sea-shore, but not very common. As upon the coast by Gallion Loch, Dr. Parsons. Banks of the Peffer burn, near Aberlady, and on the coast of Galloway at St. Mary's Isle, Mough. Fl. Sept. 2. One foot high, clothed with soft, white, cottony down. Leaves 2-ranked, their margins lance. Flowers small; members woolly. Flowers of the ray very few, sometimes 3.

2. *A. patula* (upright-flowered Sea Wormwood), "leaves downy pilose the radical ones capillary upper ones undivided, racemes erect, receptacle naked, flowers oblong," *Sm.* *E. B. t.* 1691 (*A. maritima*).

Hab. At Peffer burn and at St. Mary's Isle, with the preceding, Mough. Rocks on the coast near Aberlady, Dr. D. Evans. Fl. Sept. 2.

"Distinguished by having its flowers drooping, which character seems constant; and accompanied by differences in the general habit of the plant." *Sm.*

3. *A. albastrum* (common Wormwood), leaves bi-tripinnatifid clothed with short silky down, segments lanceolate, flowers hemispherical drooping receptacle hairy. *Lightf.* p. 457. *E. B. t.* 1236.

Hab. Waste ground and wet-sides, as about Aberlady and Queensberry, *Sm.*, Dr. Parsons. Fl. Aug. 2.

One to one foot and a half, or more, in height, striated, branched.

Flowers of flowers erect, leafy. Flared leaves undivided. Flowers dingy yellow, those of the ray very short. Very aromatic and bitter. It has been much employed in medicine, but should be used with caution.

4. *A. vulgaris* (Magnolia), leaves pinnatifid their segments cut downy beneath, flowers somewhat recurved ovate, receptacle naked. *Ligdyf.* p. 463. *E. B.* t. 378.

Hab. Under bridges and in waste places, common. *H. Aug.* X.
Stems 2—4 feet high, furrowed. Segments of the leaves acute, and sharply cut. Lenticles downy. Flowers few, purplish. It seems to possess, though to a slight degree, the properties of the last species.

23. GNAPHALIUM.

* *Flowers discolors.*

1. *Gn. discolor* (Mountain Cudweed), shoots procrumbent, stems simple, corymbis rounded, radical leaves spatulate, flowers discolors, inner scales of the involucre elongated almost coloured. *Ligdyf.* p. 470. t. 30. *E. B.* t. 367.

Hab. Mountainous and alpine healthy ground, abundant. Hills about Arthur's Seat, *Ligdyf.* Cathcly and Balvic, Glasg., *Sept.* H. June, July. X.

Stems 2—4 inches high. Leaves greenish above, white and hoary beneath. Inner scales of the involucre often near coloured, especially in the sterile flowers.

** *Flowers perfect.*

2. *Gn. sphaerium* (Highland Cudweed), stem simple mostly erect downy, flowers solitary forming a distinct leafy spike, leaves linear lanceolate downy.

a. leaves woolly on both sides. *G. spha.*, *Ligdyf.* p. 471. *E. B.* t. 313.

β. leaves nearly glabrous above, spike longer more interrupted. *G. rotund.*, *E. B.* t. 134.

Hab. Dry pastures in the Highlands, frequent, as also in woods and barrens, *Ligdyf.* β. Fossil marsh, Glasg., in dry spots, *Wye* and *D. Don.* Augustine, not rare, *G. Don.* H. Aug. X.

I can perceive no specific difference between the 2 uses here mentioned. They are both nearly erect, a spike at most high, leafy. In the scale of the long upper leaves are placed 2—3 ovate sessile flowers, forming together a more or less interrupted spike. Scales of the involucre oblong, shining with a broad, brown border.

3. *Gn. sphaerium* (dwarf Cudweed), stem decumbent branching only from the base, flowering stems erect, flowers solitary or curved, leaves linear downy on both sides. *Ligdyf.* p. 470 (*G. sphaerium*). *E. B.* t. 1153.

Hab. Near the summit of the Highland mountains, plebeial, as upon the top of Ben Lomond. H. July, Aug. X.

Whole plant rarely exceeding 2—3 inches in height, clothed all over

the stem and leaves with a dense coating pubescence. Flowers large in proportion to the size of the plant, solitary, or 2—3 in a leafy raceme. Scales of the involucre oblong with a brown shining membranous edge.—May it not be an obscure var. of the last?

3. *G. polytrichum* (Alcock Chakravart), stem very much branched diffuse caudex, leaves linear lanceolate downy, flowers in terminal crowded clusters which are shorter than the leaves. *Lighf.* p. 472. *E. B. t.* 1194.

Hab. Sandy and wet places, especially where inundated in winter, frequent. Fl Aug Sept. ☉

Stem 2 spans high, very much branched. Flowers 2—3 together in the densely placed upper leafy axils, small, sessile, forming oblong clusters at the extremity of the branches. Scales of the involucre yellowish brown, shining, glabrous.

4. *G. gallicum* (Sturges-form Chakravart), stem erect dichotomous, leaves linear acuminate downy, flowers crowded solitary and terminal, the stems much shorter than the leaves. *E. B. t.* 1202.

Hab. Dry banks near Fort St. John near Newburgh, Fitchburg, D. Des. Fl. July, Aug. ☉

Stem about 2 spans high, slender, leafy. Flowers small, oblong, in rather distant leafy clusters.

5. *G. minimum* (Virel Chakravart), stem erect branched, branches spreading, leaves lanceolate acute caudex, flowers terminal clustered lateral and terminal, clusters longer than the leaves. *Lighf.* p. 502 (*Phlago montana*). *E. B. t.* 1187.

Hab. Dry and gravelly places, common. Sandy hills, Talcrova, Chag, pleistid, Mph. King's Park, Edinb., and near-ground, Muncieburg, N. Greenville. Fl July, Aug. ☉

Stem 4—6 inches high, slender, branched above in a dichotomous manner. Perianth downy, broad at the base. Florets yellowish.

6. *G. germanicum* (common Chakravart), stem erect prostratus as the result, leaves lanceolate downy acute, flowers capitate in the axils of the branches and terminal. *Lighf.* p. 501 (*Phlago germ.*). *E. B. t.* 1195.

Hab. Sandy places and dry pastures, common, D. Des. King's Park, Edinb., N. Greenville. Occasionally about Chag; on gravel pits at Hotchkiss, Mph. Fl June, July. ☉

Stem 2—3 inches high, erect, with numerous leaves, terminated by a glomerate head of small white flowers, from branches which spring 2—3 or more horizontal branches, in a prostratus manner, each terminated by a similar head of flowers. This curious mode of reproduction contained the term of *Stem* seems to be applied by the old botanists to this plant, as if the spring were distinctly exserting itself above the parent. Scales of the involucre yellowish, shining, very acute, submembranous.

34. CONYZA.

1. *C. squarrosa* (Pissman's Spillwort), leaves pubescent a sa-

to-lanceolate serrated the upper outer edge, stem herbaceous corymbose, scales of the involucre recurved leafy. *Lepidif.* p. 473. *E. B.* t. 1135.

HAB. Dry gravelly soils, but rare. Near Blair, in Archd. Dr. Far-
mer = *Lepidif.* Fl. Sept. Oct. ♂.

Stem 2—3 feet high. *Leaves* leafy, with the leaves entire. Lower
leaves petiolate. *Flowers* yellow. *Florals* of the ray very small,
ligulate.

?? *Radical.*

23. ERIGERON.

1. *E. arvensis* (Marsh Flax-herb), peduncles alternate (usually suc-
cessive) single flowered, pappus as long as the florets of the ray,
leaves lanceolate obtuse. *Lepidif.* p. 474. *E. B.* t. 1135.

HAB. Dry mountainous pastures, frequent. Fl. Aug. Y.

One foot to two feet high, whole plant scabrous, ligulate, erect, pen-
nated above, and leafy. *Flowers* pedunculate from the axils of the
leaves, and terminal. *Leaves* below tapering into a filament. *Scales*
of the involucre linear-lanceolate, ligulate. *Florals* of the disk yel-
low, of the ray ligulate, purplish. *Pappus* very long and awy.

2. *E. alpinus* (Alpine Flax-herb), stems with usually only one
flower, pappus much shorter than the florets of the ray, leaves
lanceolate. *E. B.* t. 454, and t. 2416 (*E. uniflorus*).

HAB. Rocks on Ben Lomond, Mr. Dickson. Banks of the Almond,
above the bridge, G. Don. Fl. July. Y.

Stems as ligulate like the last, but with much longer leaves in propor-
tion; 3—5 inches high, simple, with rarely more than one flower
at the summit, which is yellow in the centre usually, and purple in
the ray. Smith gives to the *E. uniflorus* the character of "florets
of the ray erect," as they are frequently in *E. alpinus*, and as I
can see no other mark either in Smith's figure or in the specimens
that I have received from the discoverer Mr. G. Don, I feel little hesi-
tation in uniting the two.

24. TUSSILAGO.

* *Flowers* equal. *Scapes* single flowered.

1. *T. Farfara* (Colts-foot), scape single-flowered imbricated
with scales, leaves cordate angular toothed downy beneath.
Lepidif. p. 475. *E. B.* t. 429.

HAB. Moist and clayey soils, frequent, and very injurious to ploughed
lands. Fl. March, April. Y.

Root thick, extremely creeping. *Leaves* radical, appearing after the
bright yellow flowers, white and downy beneath. *Scapes* very
downy. The down of the stems and leaves makes good tinder.
The leaves themselves have been used medicinally as an infusion,
or smoked like tobacco to relieve pulmonary disorders.

?? *Flowers* all tubular. *Scapes* many-flowered.

2. *T. Patula* (common Butter-bur), thyrsus cuneo-oblong,
leaves cordate irregularly toothed with the lobes approximate

downy beneath. *Lightf.* p. 437, and 438 (*T. hybridæ*).
E. B. t. 431, and 430 (*T. hybridæ*).

Fls. River-sides, common. In April, May & June.

Root much creeping. Leaves, which come after the flowers, extremely large, all reflexed on long petioles. Stems a span high, thick and woody, with lanceolate spreading bristles. Flowers purple. Some plants have all the flowers with perfect germs, in which case the stigma is deeply cleft and linear, and the anthers are imperfect and not united, others have imperfect germs, when the stigma is very much incrimated and acute, tuberculated, and very slightly notched, whilst at the same time the anthers are perfect, united or conglomerate, purple, with white pollen. The former, with the perfect germs, producing no seed, have almost universally gone by the name of *T. hybridæ*, and to the latter the name of *T. Polakii* has usually been confined. As these plants frequently grow together, the first is rare, but nature has made ample amends, and by the long creeping roots this species is multiplied, and proves very destructive to pasture lands.—The early flowering of this plant induces the Swedish farmers to plant it near the barn- doors. Thus we see in our gardens the herb collected on its affinities, *Tax. alba* and *fragrans*, at a season when scarcely any other flowers are compared.

27. SENECKIA.

* Flowers all tubular.

1. *S. vulgaris* (common Groundsel), leaves semiamplexicaul pinnatifid toothed, flowers in clustered corymbose heads of a ray. *Lightf.* p. 478, *E. B.* t. 747.

Fls. Waste grounds, fields, and hedges, abundant. In the summer through. ☉.

A span to a foot high. Flowers small, yellow. Used as cataplasms by the Highlanders, *Lightf.* Birds are very fond of the seeds and young herbs.

** Flowers rayed, with the ray rolled back.

2. *S. siliensis* (stinking Groundsel), rays revolute, leaves pinnatifid and crenate, scales of the involucre lax hairy. *Lightf.* p. 478. *E. B.* t. 32.

Fls. Waste places, hedge banks, &c. All leaves, on the coast of Fife, near the salt works, at Dysart, by the Forth, and at Charleston, Lord Elgin's lime-works, *Lightf.* King's Park and Faggs' Wharf, Margat. Keshland, by Glasgow, &c. In July, Aug. ☉. 3. 1—2 feet high, much branched and diffuse, remarkable for its white hairs and broad seeds.

3. *S. Arida* (green-headed Groundsel), "ray revolute, leaves amplexicaul lanceolate pinnatifid and toothed, acute scales of the involucre very short acute not discoloured," Sm. *E. B.* t. 3211.

Fls. Hill of Ten-horns, Angus-shire, abundant, G. Dou. In Sept. ☉.

Leaves embracing the stem with their broad-erect base. " Habit of the following: Flowers deep yellow, small;" *Sm.*

4. *S. spurius* (*Mountain Groundsel*), ray revolute, leaves mostly pinnatifid lobed and toothed, scales of the involucre very short glabrous, stem erect straight corymbous. *Lichtf.* p. 455. *E. B.* t. 749.

Hab. Dry upland soils, banks and mounds of earth, &c., *Lichtf.* About Telferess, Gleng, Hopt. Fl. July. *Sm.*

One foot high. Leaves finely divided. Plant with a disagreeable smell, but not so powerful as in *S. nemorosus*.

*** Flowers rayed, with the ray patent. Leaves pinnatifid.

5. *S. Jacobina* (*common Ragwort*), ray spreading, leaves lyrate bipinnatifid dissected toothed glabrous, stem erect, pericarp hairy. *Lichtf.* p. 454. *E. B.* t. 1150.

Hab. Wet sides and neglected upland pastures, very abundant. Fl. July, Aug. *Sm.*

Stem 2—3 feet high, striated, branched. Flowers large, golden yellow, in corymbi. Pericarp of the corymbiform hairy, those of the disk glabrous.

6. *S. equisetum* (*Morsh Ragwort*), ray spreading, leaves lyrate serrated glabrous, the lowermost obovate and undivided, involucres bracteophorous, pericarp glabrous. *Lichtf.* p. 455 (*S. Jacobina* γ). *E. B.* t. 1151.

Hab. Wet places, and by the sides of lakes. Fl. July, Aug. *Sm.* Flowers larger than the last.

**** Flowers rayed. Leaves undivided.

7. *S. serotinum* (*broad-leaved Groundsel*), ray spreading, leaves lanceolate sharply serrated nearly glabrous, corymbi of rather few flowers. *E. B.* t. 2211.

Hab. Moist meadows and pastures, rare. In a small island on the Clyde a little below Baitwell-bridge, Dr. Brown. Border of a field near Munglach Castle, Gleng, Hopt. Bank of Eskgair, a stream flowing into the Don, *Anderson*. Between Castle Douglas and near New Galloway, Mung. Fl. July, Aug. *Sm.*

Three to five feet high. Ray of the flower with very broad ligulate lobes.

38. ASTER.

1. *A. Triplicatus* (*Sea Aster*), stem glabrous corymbous, leaves linear-lanceolate fleshy obscurely 3-nerved, scales of the involucre lanceolate membranaceous obtuse imbricated. *Lichtf.* p. 452. *E. B.* t. 57.

Hab. Salt meadows on the sea-coasts, plentiful. Fl. Aug. *Sm.* One foot to two feet high. Flowers with the disk yellow, the ray bluish purple, but the latter is often wanting.

39. SOLIDAGO.

1. *S. Virgaurea* (*common Golden-rod*), caudex leaves lance-

like the lower ones elliptical, racemes pendulous erect crowded.
Lighth. p. 492. E. B. t. 391.

H.a. Mountainous pastures and woods, plentiful.

Six inches to 2—3 feet high. Lower leaves petiolate, broad, upper ones sessile, recurved, all more or less downy. A var. is found in elevated situations with broader radical leaves and fewer flowers upon a very short stem. This has been made a species by some authors. Has been used as a voluntary and shew-herb.

30. PHILA.

1. *P. Helianthæ* (*Eleocharis*), leaves amplicordate somewhat toothed veins rugged downy beneath, scales of the involucre downy. *Lighth. p. 484. E. B. t. 1046.*

H.a. Lowlands, near houses and gardens, Dr. Parsons, who did not believe it to be really a native. Ruins of Maghach Castle, Bpsh. Castle of Inveragie, also at St. Fergus, Aberdeenshire, Mr. Murray, Near Aves, in Mull, Mr. Thwait and Shool. Fl. July, Aug. Y. Three to five feet high, branching upwards. Flowers large, terminal, solitary, deep yellow. Scales of the involucre broad and leath., spreading.

2. *P. dysenterice* (common Fire-lane), leaves oblongo-cordate amplicordate rugged above, stem mostly pubescent, scales of the involucre setaceous. *E. B. t. 1115.*

H.a. Moist and watery places, rare. Near the Mull-head of Galloway, Bpsh. Fl. Aug. Y.

One foot high. Flowers rather large, yellow, with bright eyes.

3. *P. arifolia* (*Scrophularia-lanceol Fire-lane*), leaves linear Booby generally 2-parted. *Lighth. p. 1167. E. B. t. 69.*

H.a. Sea-shore, rare. Ardingland, in the county of Falloway, Dr. Douglas. Near the Mull-head of Galloway, with *P. dysenterice*, Bpsh. Fl. Aug. Y.

One foot high, a little branched at the summit, each branch bearing a solitary yellow flower.

31. DOBONICUM.

1. *D. Pandolinarum* (great Leopard's-claw), leaves cordate repando-dentate radical ones petiolate caules ones amplicordate. *Lighth. p. 483. E. B. t. 620.*

H.a. Several places in the Lowlands, as about Hadding Castle, in Arundale, &c., but always near houses, *Lighth. Fables and hedges about Hamilton, Bpsh. Woods near Culross, Dns of Boppit and Boschy, Bpsh. Collington, G. Dns.*—Scarcely indigenous. Fl. June, July. Y.

Two to three feet high, every where pubescent. Radical leaves very large, in simple long petioles, more or less densely cordate; lower caules ones with the petiole winged and eared at the base, upper ones cordate or oblong. When young it seems to be the *D. virginicum* of Decand. and Willd., nor do I see from the description how *D. plantaginum* differs specifically. Flowers large, bright yellow.

32. BELLIS

1. *B. perennis* (common Daisy), scape naked single-flowered, leaves obscure crenate. *Lighf.* p. 457. *E. B.* t. 424.
- Hab. Pasture, frequent. Fl. from the early spring till the end of autumn. ♀

33. CHRYSANTHEMUM.

1. *Ch. Leucanthemum* (great white Daisy), leaves appressed oblong obtuse cut pointed at the base radical ones obscure petiolate, stem erect branched. *Lighf.* p. 458. *E. B.* t. 401.
- Hab. Dry pasture, abundant. Fl. June, July. ♂.
- Stem 1—2 ft. high, branched. Flowers large, their disk yellow, the ray white.
2. *Ch. argenteum* (Carr. Marigold), leaves appressed glaucous lance-linear above toothed at the base. *Lighf.* p. 459. *E. B.* t. 393.
- Hab. Corn-fields, frequent. Very rare about Edinb., much more common elsewhere, Mr. Stuart. Fl. Aug. ♂.
- One foot or more high. Flowers large, deep yellow.

34. PYRETHRUM.

1. *P. Pectenatum* (common Feverfew), leaves petiolate bipinnate the segments erect cut, peduncles branched corymbose, stem erect, involucre bearing several pubescent. *Lighf.* p. 460 (*Marrubium Pectin.*). *E. B.* t. 1231.
- Hab. Waste places near houses, and on rocks. Fl. July. ♀
- One foot to two feet high, branched. Disk of the flowers yellow, the ray very short, white.
2. *P. hederacum* (scarlet Feverfew), leaves sessile bipinnatifid with the segments capillary, stem branched spreading, pappus entire. *Lighf.* p. 458 (*Chrysanth. mod.*). *E. B.* t. 476.
- Hab. Fields and wet sides, common. Fl. Aug, Oct. ♂.
- Stem about one foot high. Flowers large, upon long naked peduncles, disk very convex, yellow, ray large, pure white.
3. *P. maritimum* (Scarlet Feverfew), leaves bipinnatifid the segments linear fleshy sessile, stem diffuse branched, pappus lobed. *Lighf.* p. 461 (*Marrubium marit.*). *E. B.* t. 371.
- Hab. Sea-coast in sandy soil. Isle of Bute and W. side of Cantyre, between Machanish and Bute, *Lighf.* See above about Aberdeen, Anderson. Apple, Cape Cornwall. Side of West Turbet Loch, and near Ballycushib, Mr. Stewart. Near M'Duff, Banffshire, Mr. Galt. Eng-Norwichey, Galloway, Dr. Walker. Fl. July. ♀.
- From a span to a foot high, spreading, thickly clothed with fleshy shining leaves. Flowers much smaller than those of *P. mod.*, and the ray shorter in proportion.

35. MATRICARIA.

1. *M. Chamensis* (wild Chamensis), leaves glaucous bipinnate

and the segments capillary, involucres nearly plane Ya scales obtuse. *Lighf.* p. 491. *E. B.* i. 1232.

HAB. Corn-fields and waste ground. Fl Aug. ☉.

Stem about a foot high, erect and branched. Flowers with a very oblong disk, yellow, the rays white, very dense, truncate, and toothed. This has a bitter taste, a faint but weak smell, not as like that of the common *Chamaemile* (*Anthemis nobilis*).

34. ANTHEMIS.

1. *A. nobilis* (common *Chamaemile*), leaves bipinnate the segments linear subulate a little downy, scales of the receptacle membranous scarcely longer than the disk. *Lighf.* p. 493. *E. B.* i. 955.

HAB. Amongst rubbish near gardens, scarcely indig. Dr. Baupen. Fl Aug. ♀.

Stems about a foot long, prostrate, and much branched, each branch terminated by a single flower, whose disk is yellow, at length coriaceous, and ray white. The whole plant intensely bitter, highly aromatic, and much used medicinally. Its principal virtues are supposed to exist in the involucres, which contains an essential oil.

2. *A. arvensis* (Green *Chamaemile*), leaves bipinnatifid their segments linear lanceolate pubescent, receptacle coriaceous its scales lanceolate, perhaps covered with an entire pepper. *Lighf.* p. 494. *E. B.* i. 602.

HAB. Corn-fields and waysides in gravelly soils. Lanes about Lams-bridge, and on the N side of Lillingston, Dr. Farman. Renslyn woods, Mr. Stewart. Fl July. ♂.

Stem upright, much branched, and, as well as the leaves, hairy with pubescence, each branch terminated with a large flower, whose disk is yellow, the ray broad and white.

3. *A. Cotula* (nicking *Chamaemile*), leaves bipinnatifid glabrous their segments subulate, receptacle coriaceous its scales setaceous, papery &c. *Lighf.* p. 495. *E. B.* i. 1772.

HAB. Waste places, corn-fields, and by road-sides. Fl July, Aug. ☉.

Stem a foot or more high, glabrous. Flowers solitary, terminal, their disk convex, pale yellow, ray rather large, white. The whole plant has a fetid smell, and is said to blister the hands of those who gather it. If it be examined with a microscope it will be found to be sprinkled all over with hoke glands, in which the acid matter is probably lodged.

4. *A. thictoria* (Ox-eye *Chamaemile*), leaves bipinnatifid serrated downy beneath, stem erect branched subcorymbose. *E. B.* i. 1472.

HAB. Beside N. of Foston, G. and D. Don. Fl July, Aug. ♀. Stem a foot or more in height, solitary, at the scales of the involucres. Flowers solitary, large, entirely yellow.

17. *ACHILLEA*.* *Flowers white, or rarely redish*

1. *A. Ptarmica* (Swiss weed), leaves linear lanceolate sometimes sharply serrated. *Lightf.* p. 495. *E. B.* i. 757.

Hab. Moist meadows and pastures, frequent. Fl. July, Aug. Y. Stem 1—3 feet high, erect, terminating in a rather large corymb, above diff., as well as rep. in white. When dried and pulverised has been used to ruble netting.

2. *Millefolium* (common Yarrow), leaves bipinnate slightly hairy their segments linear spotted acute, stems furrowed. *Lightf.* p. 495. *E. B.* i. 758.

Hab. Pastures and way-sides, frequent. Fl. the summer through Y. Stem erect, about a foot high, terminating in a corymb of heads which are smaller than those of the last species, white, or sometimes tinged with rose colour. The quality of the plant is highly singular, and the Highlanders are said to make an ointment of it which dries and heals up wounds.

** *Flowers yellow*

3. *A. lementum* (usually Yarrow), leaves bipinnatifid mostly the segments crowded linear acute, corymbs repeatedly compound. *E. B.* i. 2532.

Hab. Dry hilly pastures exposed to the sun, rare. On Spide Hill, on the N. W. of Balva, Dumfriesshire, and on the hills near Paisley. Discovered by Mr. Hugh Ross. Fl. Aug. Y.

A specimen rather more in height. Easily recognised by its downy leaves, and much branched corymbs of yellow flowers.

3. *POLYGAMIA FRUSTRANEA*.

(Cynanotrophus, Jac.)

18. *CENTAURIA*.

1. *C. Jacea* (Jacks Knapweed), scales of the involucre acute-ang. torn the lower ones pinnatifid, leaves linear lanceolate the lower ones broader and toothed. *E. B.* i. 1678.

Hab. Discovered in a young plantation in Newbigging Mire, near Edinburg castle, 1811, by Mr. Young. Seen near Newtyle, Angus-shire, by Dr. Brown but I doubt whether it may not be the same station as the first. Locality by Kinrory, Kilmarnock, C. Leitch, Esq. Fl. Aug, Sept. Y.

Lower leaves obovate-lanceolate, petiolate, toothed; upper ones entire, sessile. Scales of the involucre pale brown, shining, the inner ones deeply pinnatifid, the inner or uppermost ones torn, in which respect it differs greatly from *C. nigra*. Flowers not very numerous, spreading, purple.

2. *C. nigra* (Black Knapweed), scales of the involucre ovate-elliptic with capillary teeth, lower leaves sagittate lyrate, upper ones ovate. *Lightf.* p. 498. *E. B.* i. 179.

Hill. Meadows and pastures, frequent, sometimes found with white flowers. *Fl.* July, Aug. *Fr.*

Stem 2—3 feet high. Leaves anthers. Scales of the involucre almost black, the teeth brown. Flowers purple, numerous.

3. *C. Cyanus* (Corn Blue-bottle), scales of the involucre serrated, leaves linear entire the lowermost toothed. *Lightf.* p. 433. *F. B.* t. 277.

Hill. Corn-fields, frequent. *Fl.* July 3.

Two to three feet high, covered with a hoar cottony down, especially on the stems, and on the undersides of the leaves. Flowers of the disk small, purple; those of the ray few, large, bright blue, spreading. Scales of the involucre greenish, the margin brown.

4. *C. Scabellus* (greater Knapweed), scales of the involucre dilated ovate pubescent, inner glaucous roughish the segments lanceolate acute. *Lightf.* p. 500. *F. B.* t. 56.

Hill. Barren pastures and corn-fields, but not very common. Amongst corn in the Carse of Gowrie, *Lightf.* Part of a wall near the quarry by Port Dundas, Dr. Brown. Banks of the Cadder, near the bridge, Spald. Near Aberdeen, Mr. Abbott. With white flowers; near Dundee, Dr. Don. Road-side between Gullies and Dalmeny, R. Leitham, and considerable to the W. of Largo, Fifehire, March. *Fl.* July, Aug. *Fr.*

Three feet high, erect, much branched. Bractheas globose, very large, their scales cottony, almost black, the rim whitish.—A var. of this is found by Mr. Dr. Don in Scotland, with the leaves less deeply divided, and the calical tube very large, which he considers to be, and probably with justice, the *C. ovatus* of Willd.

XX. GYNANDRIA.

1. MONANDRIA.

* *Stylis* white, nearly terminal, persistent. Pollen mass, composed of angular granules distinctly coloring, fixed by its base. *Fr.*

1. *Garcus*. Cor. ringent. Lip spurred on the under side at the base. Glands of the stalk of the pollen mass (1—2) contained in one common little pouch. *Fr.*

2. *GYNANDRIA*. Cor. ringent. Lip spurred at the base beneath. Glands of the stalk of the pollen mass naked, appressed. *Fr.*

3. *HASTARIA*. Cor. ringent. Lip spurred on the under side at the base beneath. Glands of the stalk of the pollen mass naked, distinct, with the cells of the bractheas distinct or separated. *Fr.* [This character seems too near that of the last genus.]

* I follow, in this class, entirely the new arrangements of *Ochilidae* plants, published by Mr. Brown in the second ed. of *Floris Escoticis*.

- *** *Anther parallel with the stigma. Pollen mass fusiform, or composed of angular granules, fixed to the stigma by its extremity. Br.*
4. *GOODEVIA.* Cor. sagittate, with the 2 exterior or lateral segments of the perianth placed beneath the lip, which is gibbous at the base, and undivided on the exterior. Column free. Pollen regular. Br.
5. *LORETTIA.* Cor. irregular. Lip 2-lobed. Column wingless. Anther fixed by its base. Pollen fusiform. Br.
- **** *Anther terminal, curved, persistent. Mass of pollen, either parallel or composed of angular granules, fixed by its base or below the extremity. Br.*
6. *ERYTHRA.* Lip ventricose below, the extremity either undivided or 2-lobed, the middle lobe the largest, connected, as it were, by a joint. Pollen fusiform. Br.
- ***** *Anther terminal, uncurved, deciduous. Mass of pollen at length becoming wavy. Br.*
7. *METAZEA.* Lip plane, undivided, sessile, (lobes exterior,) 3 segments of the perianth narrower, spreading or deflexed. Masses of pollen 4, parallel with each other, fixed to the stigma by their extremities. Br.
8. *CONSTITUTIONIA.* Lip produced behind, adnate with the spur or free. Column free. Masses of pollen 4, oblique (or parallel). Br.

1. MONANDRIA.

1. ORCHIS.

* Pollen two, undivided

1. *O. Moria* (Meadow Orchis), lip 2-lobed, the lower lobes obtuse middle one emarginate, segments of the perianth ascending obtuse, spur conical ascending shorter than the germen. *Lichtf.* p. 314. *B. B. t.* 3049. Hook. in Curt. Fl. Lond. ed. 3, with a fig.

Hab. Pastures and moist woods, frequent. Fl. June. 2.

Stem from a span to 1 foot high. Flowers few, on an erect, leafy spike. Bracts about as long as the germen. The 3 segments of the perianth close together and form the helmet, purplish green. Lip purple, whitish in the middle, with purple spots.

2. *O. maculata* (rarely spotted Orchis), lip 2-lobed spreading above, the middle lobe stiff, segments of the perianth stiff the exterior one reflexed, spur linear ascending compressed at the extremity rather longer than the germen. *Lichtf.* p. 313. *B. B. t.* 631. Hook. in Curt. Fl. Lond. ed. 3, with a fig.

* *Not in Flora Britannica.*

Hab. Woods and pastures, frequent, varying sometimes with white flowers. Fl. June. Y.

Stem 1 foot high. Leaves generally marked with dark purple spots. Flowers disposed in a lax oblong spike, purple, the centre of the lip whitish at the base and spotted.

3. *O. pyramidalis* (pyramidal Orchid), lip 3-lobed the lobes equal entire with 2 longitudinal appendages on the upper side near the base, segments of the perianth imbricate the 2 upper ones spreading, spur filiform longer than the germen. *Lichtf.* p. 314. *E. B. t.* 119. *Hook. in Cart. Fl. Land. ed. 2, with a fig.*

Hab. Dry pastures, rare, as near Tallahassee, in the Isle of Cuba, *Lichtf.* Fl. July. Y.

Stem one foot high, slender. Flowers of a vivid purplish rose colour, spirally arranged in a dense pyramidal spike, remarkable for the two processes at the base of the lip, and the great length of the spur.

** *Palea* 2, palmate.

4. *O. latifolia* (Marsh Orchid), lip slightly 3-lobed the sides reflexed, 3 linear segments of the perianth concave, the spur cylindrical shorter than the germen, bractlets longer than the flowers. *Lichtf.* p. 315. *E. B. t.* 225. *Hook. in Cart. Fl. Land. ed. 2, with a fig.*

Hab. Marshes and moist meadows, common. Fl. June. Y.

Flowers varying from a pale rose colour to deep purple, the lip dotted and marked with darker lines. This species, which is about a foot in height, may always be known by its slightly lobed lip, its broad, nearly erect, and unimbricated leaves, and especially by the bractlets, which are leafy and longer than the germen.

5. *O. maculata* (spotted palmate Orchid), lip plane 3-lobed crenate, the 2 upper segments of the perianth concave the lateral ones palmate, spur cylindrical shorter than the germen, bractlets as long as the germen. *Lichtf.* p. 317. *E. B. t.* 532. *Hook. in Cart. Fl. Land. with a fig.*

Hab. Pastures and hedges, very common. Fl. June, July. Y.

A foot high, straight, slender. Leaves distinct, spotted with purple, leaflets 3-lobed ovate-oblong, dense. Flowers white, or pale purple, more or less spotted, streaked, especially on the lip. The deeply lobed lip, having the central lobe generally the longest and erect, together with the small, subulate bractlets, are in themselves sufficient marks of distinction between this and *O. latif.*

2. GYMNADELLA.

1. *G. composita* (fragrant Gynadenella). *Brown in Hort. Kew. ed. 2, n. 5, p. 161. Lichtf.* p. 318, and *E. B. t.* 19 (Orchid comp.).

Hab. Pastures and hedges, not unfrequent, sometimes varying with a white flower. Fl. June—Aug. Y.

Stem nearly 1 foot high. *Palea* palmate. Leaves linear-lanceolate,

looked. Flowers in an oblong rather dense spike, purple. Lip 3-lobed, the lobes equal, entire, not spotted. The 2 lateral or nateral segments of the perianth spreading, their margins rolled back, the 3 superior ones broadly ovate, concave. Spur filiform, twice as long as the germens. The 2 cells of the anthers are perforated at the base, through which the naked, large, and shining plants of the stalks of the pollen mass appear. Granules of pollen green, lax. Bracteoles longer than the germens.—This plant exhalates a most delightful fragrance. The structure of the anther is very curious, and different from that of *Oreola*, and the long filament upon which the plant a remarkable appearance.

3. HADENARIA

1. *H. viridis* (green *Hadenaria*), spur very short somewhat 2-lobed, lip linear trilobate, middle tooth very small, bracts as much longer than the flower, lobes paleate. *Straw* in *Hort. Kew.* ed. 2, v. 3, p. 192. *Hook.* in *Curt. Fl. Lond.* ed. 2, with a fig. *Lightf.* p. 319, and *E. B.* t. 94 (*Saxifraga viridis*).

Hab. Dry hilly pastures, not uncommon. Pastures near Caroline Park, and Cranford Island, Schuyl. Co., March. Duller's woods, Dr. Brown, and at Douglassville, Glouc. Mass.

Stem 6—8 inches high, lower leaves nearly ovate, obtuse; segments of the perianth concave, and forming a helmet, green. Lip short, small, brownish.

2. *H. alba* (small white *Hadenaria*), spur obtuse much shorter than the germens, lip 3-lobed, lobes acute middle one longest. *Straw* in *Hort. Kew.* ed. 2, v. 3, p. 193. *Hook.* in *Fl. Lond.* with a fig. *Lightf.* p. 319, and *E. B.* t. 305 (*Saxifraga alba*).

Hab. Mountainous pastures, not rare, especially in the Highlands and Western Isles. Crompton Hills, Ac., Mr. Murray. Apples, Cape Charles. Near Taverners, Ansonia; also many other places. Fl. July, Aug. 3.

About a span high. Leaves oblong, striated; lower ones obtuse. Flowers white, small, fragrant. Segments of the perianth slightly spreading. Lip a little deflexed, short.

3. *H. lychnis* (Butterfly *Hadenaria*), spur filiform twice as long as the germens, lip linear entire, radical leaves lanceolate-obovate, attenuated at the base. *Straw* in *Hort. Kew.* ed. 2, v. 3, p. 193. *Hook.* in *Curt. Fl. Lond.* ed. 2, with a fig. *Lightf.* p. 413, and *E. B.* t. 22 (*Oreola lychnis*).

Hab. Moist meadows and marshy places in the mountains, frequent. Fl. May, June. 3.

Tubers undivided, tapering. Stem 1—4 feet high, with two large radical leaves and 3—4 very small cauline ones. Spike long, of numerous large, yellowish-green, very fragrant flowers. The honey of the cells of the anther very distinct from each other.

4. GOODYERA.

1. *G. repens* (creeping Goodysen), ² radical leaves ovate, lip and perianth lanceolate. ³ Brown in *Hort. Kew.* ed. 2. v. 3. p. 158. *Lightf.* p. 520, t. 22, and *E. B. t.* 289 (*Saxifraga repens*).

Hab. Old mossy woods, but rare. In a wood called Cadair at Dunderdilly by Lark Lake Burn, *Lightf.* Wood near May Hall, on the road to Inverness, Dr. Hope. Near Duffield, Mr. Shillingham. Woods at Brodie House, Inver. Wood of Calloden near Inverness, sparingly, also Gordon Castle woods, and woods of Strass, Mr. Murray. Fl Aug. 2.

Root creeping. Stem a span in height. Leaves mostly from near the root, ovate, parallel veined, spreading, a few on the stem small, lanceolate, erect. Bracts longer than the greenish flowers with a reddish tinge, which are covered as a rule by the

5. LISTERA.

1. *L. ovata* (common *Tinyllade*), stem with only a pair of ovate-elliptical opposite leaves, calyxes of insignificant; having an appendage in which the anther is placed. Brown in *Hort. Kew.* ed. 2. v. 3. p. 201. *Lightf.* p. 523, and *L. B. t.* 1545 (*Ophrys ovata*).

Hab. Woods and moist pastures, not uncommon. Fl June 2. Stem one foot high. Leaves twisted. Flowers distant upon the spike, yellowish green. The three stamens separate at the perianth base, spreading; two lower ones hairy, oblong. Lip long, 3/4 in., without any teeth at the base. Bracts very short.

2. *L. cordata* (heart-leaved *Tinyllade*), stem with only 2 cordate opposite leaves, calyxes without any appendage behind, lip with 2 teeth at the base. Brown in *Hort. Kew.* ed. 2. v. 3. p. 201. *Lightf.* p. 524, and *E. B. t.* 515 (*Ophrys cordata*).

Hab. *Schoenus montana*, not uncommon, particularly in the Western Highlands. Found between Ulladale and the Black Pass, bog near Berdy Toll, and on the Portland Hill, Edinb., Mr. Somerville and E. J. Kingston. Plentiful on the N. E. side of Bannock Hill, Bannock, and woods of Laurence, Perthshire, Mr. Murray. Ben Lomond, Mr. Young. Fl July, Aug. 2.

Root a few long, rather fleshy, fibres. Stem 2—4 inches high. Flowers few, very small, distant upon the spike, greenish brown. Bracts extremely minute. Segments of the perianth somewhat spreading, ovate, 2 lower ones the innermost. Lip rather long, furnished with 2 teeth at the base, and clothed halfway down with 2 slightly spreading, unsegmented segments.

3. *L. Nidus Aves* (Bird's-nest *Listera*), stem with sheathing scale leaves. Root as Fl. Land with a figure. *Lightf.* p. 522, and *E. B. t.* 45 (*Ophrys Nidus Aves*). *Sp. pl. Scot.*, Swartz. *Nidus*, Richard.

Hab. Shrub upon a thick old wood, but not common: as in Auchinderry wood Edinb., Dr. Pearson. Woods at Fochburg, near

Loch Tay, Dr. Stuart. Woods at Delamere, Edinb., and hills of Craigie Innis, Dunblod, Mung. Woods of Melmore Castle, Perthshire, Mr. Murray. Apple, Capt. Cornwall. Codrington wood, Mr. Waller. Falls of Monzie, Mr. Barrer and Black., and Rappert Glen, Mr. Foway. Fl May, June. Y.

Roots of numerous, short, thick, very densely rounded fibres. Stem 1 foot in height. Flowers in a lax spike and of the same drab-brown colour as the whole plant. Segments of the perianth convex, acute, lip oblong, bilobed at the extremity, the lobes spreading. Column of fertility without any appendage on the back.

C. EMPACTIS.

1. *E. latifolia* (broad-leaved *Malabarica*), leaves ovate amplicaul, lower bractees longer than the flowers, flowers drooping, lip rather acuminated shorter than the petals. Brown in Hort. Kew. ed. 2. v. 5. p. 203. Hook. in Fl. Lond. with a figure. Lightf. p. 525, and E. B. t. 269 (*Scrophia latifolia*).

H. n. Woods and pastures, not cultivated. Delamere and T. Craigie Innis woods, Mung. Woods at Balmilly, Hamilton, and Woodhall, and pastures, Dalbeth, Neph. Salmon, Mr. Foway. Fl July, Aug. Y.

Root drooping, throwing out long fibres, as does that of the 3 following species. Stem 1—2 feet high. Lower leaves broadly ovate, upper ones gradually narrowing. Flowers in long lax spikes, greenish purple, varying extremely in intensity of colour. Lip as well as the segments of the perianth convex, acute, nerve spreading.

2. *E. pubescens* (Marsh *Malabarica*), leaves lanceolate amplicaul, bractees shorter than the flowers, flowers slightly drooping, lip ovate obtuse rather longer than the perianth, Brown in Hort. Kew. ed. 2. v. 5. p. 203. Hook. in Fl. Lond. with a figure. Lightf. p. 527, and E. B. t. 270 (*Scrophia pubescens*).

H. n. Rough boggy pastures and moorlands, but far from common. Bogs near Dunblod, Lightf. In a field 1 mile E. of Anstruther, Mr. Chalmers. Marsh near Dunbar, G. Don. Fl July. Y.

Stem 1 foot high, purplish above. Flowers dense, forming an oblong spike. Perianth and lip spreading, the 2 outer segments of the former deep greenish purple, 2 inner ones and the lip pure white, with rose coloured streaks at the base. Corolla much longer than in the last species, and the plants extremely distinct, though by some botanists they have been considered together.

3. *E. pubescens* (white *Malabarica*), leaves ovate-lanceolate sessile, bractees longer than the flower, lip obtuse shorter than the perianth. Brown in Hort. Kew. ed. 2. v. 5. p. 202. Hook. in Fl. Lond. with a figure. Lightf. p. 524, and E. B. t. 271 (*Scrophia grandiflora*).

H. n. Woods, rare. At Loch Rann in the hills of Arisa, Lightf. Apple, Capt. Cornwall. Woods of Melmore Castle, near, G. Don. Fl June. Y.

Stem 2 feet or more high. Bractees large, scarcely differing from the

leaves. Segments of the perianth large, inner, white, concave, including the lip, which is also white externally, but yellow within. Column of fructification in this and the following species very long; whereas in the 2 preceding ones it is remarkably short.

4. *E. suffulta* (narrow-leaved *Helioselinia*), leaves lanceolate much acuminate subobtusate, bracteen very minute subulate, flowers erect, lip obtuse much shorter than the perianth. Brown in *Hort. Kew.* ed. 2. v. 3. p. 202. Hook. in *Fl. Lepad.* with a figure. *E. B. t.* 434 (*Sergius cristifolius*).

Hab. Woods of Methuen, Perthshire, Mr. T. Bishop. Fl. June. W. Stem a foot and more in height. Flowers large, white. Segments of the perianth scarioused; lip white, yellow at the extremity on the inside.

7. MALAXIS.

1. *M. pulchra* (Marsh *Makuch*), leaves about 4 at the base of the stem scabrous at the extremity, shape pentagonal, lip concave acute. Brown in *Hort. Kew.* ed. 2. v. 3. p. 208. *E. B. t.* 72. *Lighf.* p. 525 (*Opheya pulchra*).

Hab. Marshes near St. Andrews, mentioned in *Lighf.* With near the foot of Dun Clave, Kintyre-shire, Mr. D. Stewart. A light to the E. of Ben Vorlich, and a little above the house of Ardwick, Mr. James Hall of Galloway, Mr. Wink. Fl. Aug., height W.

Stems 2—4 (in leaf high). Leaves arising from a round leaf. Spike long, slender, of several small greenish flowers. Lip much exceeding the other segments of the perianth.

8. CORALLORHIZA.

1. *C. innata* (various *Coral-root*), four abbreviated lobes. Br. in *Hort. Kew.* ed. 2. v. 3. p. 206. *Lighf.* p. 513. t. 23, and *E. B. t.* 1547 (*Opheya corallorhiza*).

Hab. Marshy woods, rare. Moist hanging wood on the S. side near the head of Little Loch Broom, Ross-shire, *Lighf.* W. side of a peat bog near Herding Toll, Edinb., among Schorn, Mr. E. J. Munro. Woods of Methuen Castle, Perthshire (since destroyed), Mr. T. Bishop. Fl. July. W.

Root remarkable for its thick, fleshy, much branched and diverging fibres. Stem from 4—12 inches high, greenish, with 2—3 shuffling, lanceolate sessile scales rather than leaves. Flowers 6—8 in a lax, short spike, pale yellowish green. Bracteen very minute. Segments of the perianth lanceolate, spreading, acute, lip ovate, entire.

XXI. MONOCIA.

I. MONANDRIA.

1. *ZYGANTHUS*. Berres Fl. Perianth none.

Fruple Fl. Perianth single, of 1 leaf. Germens 4 or more.

Style 1. Stigma peltate. Capsules acute.

2. *Calamagrostis*. Barren fl. Perianth single, of 2 leaves. Anther of 1 cell.

Fertile fl. Germen 4-lobed. Style 2. Pericarp of 4 deep, unequal lobes, imbricate, 4-celled; cells 1-seeded.

3. *Xanthoxylum*. Stamens and pistil inserted in 2 rows upon one side of a spathe. Spathe leucous.

Barren fl. Anthers ovate, sessile, alternating with the germen.

Fertile fl. Germen ovate. Style bifid. Drupe with 1 seed.
(*Chenopodaceae*.)

2. TRIANDRIA.

5. *Spergandium*. Flowers in spherical dense heads.

Barren fl. Perianth single, of 3 leaves.

Fertile fl. Perianth single, of 3 leaves. Drupe dry, with 1 seed.

6. *Carex*. Flowers collected into an imbricated catkin.

Barren fl. Calyx of 1 scale, glaucous. Cor. 0.

Fertile fl. Calyx of 1 scale, glaucous. Cor. of 1 leaf, ovate, ventricose. Stigmas 2—3. Nut triquetrous, included within the persistent cor.

4. *Typha*. Flowers collected into cylindrical dense spikes or catkins.

Barren fl. Perianth 0. Stem 3 together, upon a chaffy or hairy receptacle, united below into 1 filament.

Fertile fl. Perianth 0. Pericarp pedicellate, surrounded at the base with hairs resembling a pappus.

3. TETRANDRIA.

7. *Eriocaulon*. Flowers collected into a compact, scaly head.

Barren fl. in the disk. Perianth single, 4-lobed, the 2 outer segments united nearly to their summit. Stem 4—6.

Fertile fl. in the circumference. Perianth single, deeply 4-partite. Style 1. Stigmas 2—3. Capsule 2—3-lobed, 2—3-celled. Cells 1-seeded.

8. *Liriodendron*. Barren fl. Calyx of 4 leaves. Cor. 4-lobed. Stem very long.

Fertile fl. Calyx 0. Cor. unequally 3-lobed. Style very long. Nut 1-seeded.

10. *Utriclea*. Barren fl. Perianth single, of 4 leaves, containing the cup-shaped rudiment of a germen.

Fertile fl. Perianth single, of 2 leaves. Pericarp 1-seeded, oblong.

9. *Alnus*. Flowers collected into imbricated catkins.

Barren fl. Scale of the catkin 3-lobed, with 3 flowers. Perianth single, 4-partite.

Fertile Fl.—Scale of the catkin subsitified, with 2 flowers.
Perianth 8. *Stylar* 2. *Fruit* compressed.

(*Myrica* *Myrica*.)

4. PENTANDRIA.

11. *BAYONIA*. *Barren Fl.* Calyx 5-dentate. Cor. 5-lobed.
Filaments 5. *Antheae* 5.

Fertile Fl. Calyx 5-dentate. Cor. 5-lobed. Style trifid.
Ovary inferior, globose, many-seeded.

(*Populus* *Quercus*, *Qud.* *PALMACE*.)

(*Asplenium* *peristylodes*, *PERISTYL*.)

(HEXANDRIA.)

(*Quercus*, *Qud.* *PALMACE*.)

5. POLYANDRIA.

10. *MYNODONTIUM*. *Barren Fl.* Calyx of 4 leaves. *Petal* 4.
Stam. 8.

Fertile Fl. Calyx of 4 leaves. *Petal* 4. *Stigma* 4, sessile. *Nut* 4, subglobose, 1-seeded.

13. *PORTULACA*. *Barren Fl.* Cal. of 4 leaves. Cor. 4-partite.
Stam. 30—40.

Fertile Fl. Cal. of 4 leaves. Cor. 4-partite. *Germs* 2.
Fruit 2-celled, invested with the cal.

12. *CRATONOTUM*. *Barren Fl.* Cal. multi-partite. Cor. 0.
Stam. 16—20.

Fertile Fl. Cal. multi-partite. Cor. 0. *Stigma* nearly sessile, oblique. *Nut* 1-seeded.

16. *FALCIS*. *Barren Fl.* In a globose catkin. *Perianth* single, of 1 leaf, campanulate, 6-lobed. *Stam.* 5—12.

Fertile Fl. 2, within a 4-lobed prickly involucre. *Perianth* single, ovate with 4—5 minute lobes. *Germs* incorporated with the perianth, 3-celled, 2 of them becoming abortive. *Stylar* 3. *Nut* 1-seeded, invested with the enlarged involucre.

17. *CARRANEA*. *Barren Fl.* In a very long cylindrical catkin. *Perianth* single, of 1 leaf, 6-lobed. *Stam.* 5—20.

Fertile Fl. 2, within a 4-lobed, thickly mucronated involucre. *Perianth* single, ovate, 5—6-lobed, having the rudiments of 12 stam. *Germs* incorporated with the perianth, 3-celled, with the cells 2-seeded, 1 of them mostly abortive. *Stylar* 3. *Nut* 1—2-seeded, invested with the enlarged involucre.

18. *QUINCEA*. *Barren Fl.* In a lax catkin. *Perianth* single, somewhat 5-lobed. *Stam.* 5—10.

Fertile Fl. Involucre cup-shaped, woolly. *Perianth* single, incorporated with the perianth, 6-lobed. *Germs* 3-celled, 2

of them abortive. *Style* 1. *Stigma* 3. *Nat* (acorn) 1-celled, 1-seeded, surrounded at the base by the enlarged, cup-shaped involucre.

24. *CORYMB.* *Barren Fl.* in a cylindrical catkin, its scales 3-lobed. *Perianth* 0. *Stam.* 9. *Anthers* 1-celled.

Fertile Fl. *Perianth* obsolete. *Germs* several, surrounded by a fleshy involucre. *Stigma* 2. *Nat* 1-seeded, surrounded at the base with the enlarged, united, cartaceous scales of the involucre.

25. *CARYOPH.* *Barren Fl.* in a cylindrical catkin; its scales reniform, ciliated at the base. *Stam.* 8—20.

Fertile Fl. in a lax catkin; its scales large, foliaceous, 2-lobed, 1-flowered. *Involucres* 0. *Perianth* of 1 leaf, acuminate, 6-dentate, interpersed with the 2-celled perianth, of which 1 cell is abortive. *Style* 2. *Nat* ovate, notched, 1-seeded.

19. *SERRUL.* *Barren Fl.* in a cylindrical catkin, its scales 2-flowered. *Perianth* 0. *Stam.* 10—12.

Fertile Fl. *Scale* of the catkin imperfectly 3-lobed, 2-flowered. *Perianth* 0. *Style* 2. *Germs* compressed, 2-celled, 1 abortive. *Nut* compressed, with a membranaceous margin, 1-seeded.

14. *ACUM.* *Spatha* of 1 leaf, convolute at the base. *Perianth* 0. *Spatha* with perianth at the base. *Stam.* (seeds) near the middle of the spathe, which is rolled above. *Berry* 1-celled, 1-seeded.

6. MONADELPHIA.

22. *PICUA.* *Barren Fl.* in crowded monouscous catkins; its scales palmate, bearing 2 1-celled, sessile anthers. *Perianth* 0.

Fertile Fl. in an ovate catkin; its scales closely imbricated, 2-flowered. *Perianth* 0. *Pericarp* 1-seeded, terminated by a long winged appendage, and covered by the imbricated scales forming a cone (involucris).

(Type. *Ord. TAMARA.*)

1. MONANDRIA.

1. RANUNCHELLIA.

1. *R. palustris* (dwarfed Ranunculus), anthers 4-celled, stigma sessile, pericarp toothed on the back. *Light.* p. 264. *E. R.* t. 1844.

Hab. Ditches and stagnant waters. *Fl. Ang.* 9.

Flowering: *Stems* long, filiform, branched. *Leaves* opposite, linear, entire. *Flowers* solitary, from a membranaceous bract. *Fertile fl.* upon a very short stalk, from the base of which arises a single celled ovule, upon a long white filament.

2 CALLITRICHE.

2. *C. aquatica* (*Water Starwort*). *Lepchf.* p. 79 (*C. verna* and *C. arvensis*). *E. B.* t. 724.

Hab. Ditches, pools, and slow streams, abundant. *Fl.* Apr.—Oct. 2.

Stem filiform, branched, varying much in length according to the depth of the water, and almost equally so in the form of the leaves. Generally the superior leaves, which float on the surface, are spatulate and crenated, the lower linear, all opposite. From the axils of the upper ones appear the, mostly, numerous flowers. Perianth single, of 5, bacillate, concave-curved, incurved, white, membranous lamina. *Stam.* 4 with only one long filament, surrounded by a nearly spherical, yellow anther, opening vertically. *Pistil.* 4 with a small perianth, terminated by two, long, curved styles.

3. BOSTEIA.

3. *B. marina* (*rupestris* *Grass-wort*), leaves entire somewhat 3-nerved, stem roundish. *Lepchf.* p. 320. *E. B.* t. 467. Rhiz. in *Pl. Lond.* with a figure.

Hab. Marine ditches, and thrown up by the tide on the sea-shore, common. *Fl.* Aug. (*Lepchf.*). (Apr. and May in England.) 2.

Stems very various in length, as are the long leaves, obtuse, more or less slightly 3-nerved leaves, which have long sheathing bases. Spicular leaves, arising from a sheathing portion of the leaf, which thus forms the spathe. Flowers all on one side of the spathe, quite deciduous of perianth, in two rows. *Pistils* and anthers alternate, generally two anthers and then 1 pistil; both ovate, or oblongo-ovate, the former tipped with a ligulate, long, filiform style. Both are green. Anthers bursting irregularly—Used in some northern parts of Europe for bedding, and said to be excellent for packing glass-bottles and other brittle ware.

3. TRIANDRIA.

4 TYPIA.

1. *T. latifolia* (*great Cat's-tail* or *Reed-Moss*), leaves linear nearly plane, sterile and fertile catkins close together. *Lepchf.* p. 528. *E. B.* t. 1455.

Hab. Borders of ponds and lakes in several places. Loch-lead, near Edinburgh. Bog on the banks of the Clyde 2 m. from Hamilton, *Sept.* *Fl.* July. 2.

Others 3—4 f. high. Leaves very long, sometimes an inch broad. Catkins very long, close together; fertile one greenish brown; sterile ones yellow with 1 or 2 longish membranous bracts.

2. *T. angustifolia* (*lesser Cat's-tail* or *Reed-Moss*), leaves linear curved below, sterile and fertile catkins a little distant from each other. *E. B.* t. 1456.

Hab. Loch of Linlithgow, Fifehire, abundantly, 2 Dec. *Fl.* July. 2.

Smaller than the last, with much narrower leaves and rather sterile flowers, according to Smith, (which in *T. latif* have hairs on the receptacle,) mixed with chaffy scales.

3. SPARGANIUM.

1. *S. racemosum* (branched Star-weed), leaves triangular at the base their sides convex, common flower-stalk branched, stigma linear. *Lighf.* p. 339 (*S. arifolium*). *E. B.* i. 744.

Hab. Banks of lakes and stagnant waters, not uncommon. *Fl.* July. 3.

Two feet and more high, with a few round-shaped leaves or bristles with broad membranous sheathing bases on the upper or branching part of the culm. Radical leaves very long, linear-oviform, triangular at the base, their sides convex. Sterile flowers in spherical heads, densely placed on the upper part of the branches of the culm, fertile ones below.

2. *S. simplex* (unbranched upright Star-weed), leaves triangular at the base their sides plane, common flower-stalk simple, stigma linear. *Lighf.* p. 340 (var. of *S. racemosum*). *E. B.* i. 744.

Hab. Lightest meadows like the most common of the two. Dark near Canterbury, Margate Bay, Ramsgate, Gilling, Hook, Bore, plentiful, Mr. Murray, Apple, Oyst. Covehead. Lakes near Pinner, Ave. G. and St. Ives. *Fl.* July. 3.

Much smaller than the last. Culm rarely at all branched, though the lower heads of flowers are pedunculate. The sides of the leaves are plane, not convex as greened. The flowers pale yellow.

3. *S. natans* (floating Star-weed), leaves floating plane, common flower-stalk simple, stigma ovate very short, head of sterile flowers mostly solitary. *Lighf.* p. 341. *E. B.* i. 273.

Hab. Lakes, ditches, and stagnant waters, not unfrequent, especially in the Highlands. Loch on Dunrobin hill, Mr. F. Nott, and perhaps S. side of Dalnashery Hill, Kildale, Margate, Frankfield and Slapdash Lochs, for about Gilling, abundantly, Margate. *Fl.* July. 3. Leaves very long, linear, peltoid.

4. CAREX.

* *Spike simple, solitary, the upper part formed of sterile, and the lower part of fertile flowers* (except in *C. diocis* and *C. Davalliana*, which are dioecious).

1. *C. diocis* (upright-fruited dioecious Carex), spike simple dioecious, fruit ascending ovate sharply acuminate notched enough at the margin upwards. *Lighf.* p. 341. *E. B.* i. 343.

Hab. Boggy places, especially in the Highlands, common. Prestall-hills and Kewbury hill, plentiful, Mr. Grenville. Not very frequent about Gilling. Margate. *Fl.* May, June. 3.

Root-rhizomatous. Culm a span high, smoothish. Stigma 2.

2. *C. Davalliana* (inverted-fruited dioecious Carex), spike simple dioecious, fruit ovate much acuminate recurvato-fimbriated mucronate at the margin. *E. B.* i. 3123.

Hab. Subalpine bog, Mourne-shire, Prof. J. Smith. Bog near Clougane-till, and by the side of Gullion Lough, Ulster, May. Pl. Jan. 2.

Root fibrous. Culm a span to a foot high, rough. Fruit much broader than the base, shining. *Stigma* 2.—Wallerberg is surely wrong in making this a var. of the preceding.

3. *C. patens* (Flea Carr), spike simple androgynous, flowers few, fruit distant oblongo-lanceolate acuminate reflexed, stigma 2. *Light*, p. 543. *E. R.* t. 1951.

Hab. Bogs, frequent. Pl. May, June. 2.

A span high. Culm smooth. Leaves, as in all of the division, reticulate or filiform. Fruit dark brown, smooth.

4. *C. pauciflora* (few-flowered Carr), spike simple androgynous of very few flowers, fruit distant lanceolate-subulate persistent-reflexed, stigma 3. *Light*, p. 543. t. 6. f. 2. *E. R.* t. 1941.

Hab. Discovered by Mr. Euphrasie in bog half way up the mountain Slieve, in Arona, in the ascent from Brodick castle. Wet moor in the Highlands, District. Near Clougane, North, Mull of Ben Lomond, Dr. Walker. N. of Blair, Mr. Black, Marlborough, the ascent to Ben Nevis, Mr. Barrer and Mack. Pl. Jan. 2. Hardly known from the last, if any other characters were wanting, by the very pale yellowish colour of the fruit, which is also striated.

** Culm divided upwards into several spikes, which are simple androgynous, with a subterminal bract at the base, and flowers c. 4-5 stigmas.

† Spikelets sterile at their extremity (except in *C. arvensis* and *C. intricata*).

5. *C. lacuna* (purred Carr), spikelets sterile at their extremity collected into a roundish head, fruit broadly retundato-ovate shortly acuminate swelling on both sides nearly entire at the point, culm obtusely angular, leaves channelled. *Light*, p. 544. t. 24. f. 1. *E. R.* t. 1927.

Hab. Discovered by the late Dr. Hope at the mouth of the water of Naver, and near Kildrummy, in Dornoch, Scotland. Near Sheeps-croft, Prof. Brewin. Hills of St. Andrews, Murrumbidgee, Coast of Manx, James Brodie, Esq. Sand between the Brins and Holmshide rivers, Netherlands, and Ken Day, Cullinan, Mr. Barrer and Mack. Pl. June 2.

Root very spreading. Culm 2-4 inches high, curved. Head large, broadly retundato-ovate. Cal. plane with a broad membranous border.

6. *C. arvensis* (Sea-side Carr), lower spikelets fertile upper ones sterile all crowded, fruit with a membranous margin, bract-membranaceous the lower ones suboblong, culm triangular, leaves plane. *Light*, p. 545. *E. R.* t. 1928.

11a. Sandy sea-shores, frequent, where it is of the greatest service in binding the loose sands. Fl. June. ♀.

Stems excessively long and creeping. Culms rough, 3 inches to 1 foot high. Spikelets axile, collected into an interrupted spike.

7. *C. intermedia* (soft brown Cori), inferior and terminal spikelets fertile, the intermediate ones sterile, fruit acutely margined, culms triangular. *Lichtf.* p. 546 (*C. diandra*). *E. B. t.* 2042.

11a. Bogs and marshy grounds. Gullion Links and Forth Lock, Mr. Stewart. Broad and Portland Hills, and King's Park, Edinb., Mr. Greville. Fl. June. ♀.

One to two feet and a half high. Bracts membranaceous, small.

8. *C. divisa* (branched *Johann Cori*), spikelets sterile at their extremity crowded into a somewhat axile head the lower ones simple or compound with a leafy axile bract at their base, fruit reddish axile convex on one side slightly concave on the other acutely angular above at the point. *E. B. t.* 1066.

11a. Marsh near Montrose and west-end of Angus shore, chiefly in marshy places, G. Don. Fl. May, June. ♀.

Culms about 1 foot high. Lower leaves long, leaf-like.

9. *C. maritima* (maritima *Cori*), spikelets sterile at their extremities three-compounded collected into a rather long mass or less interrupted spike, fruit convex-plane ovate-acuminate subangular divergent rough at the margin upward. *Lichtf.* p. 548 (*C. spicata*). *E. B. t.* 1007.

9. spike elongated with distinct spikelets. *C. divisa*, *E. B. t.* 619.

11a. Marshes and shady places. *B.* in similar situations. Rock below Culbourn castle, Glang, D. Don. Fl. June. ♀.

One foot to two feet high. Spikelets more or less crowded, and this is all the difference I can find between *C. maritima* and *C. divisa*. The acute Waldenberg within Don. Fruit pale coloured. Bracts small, linear-lance, submembran.

10. *C. vulpina* (great *Cori*), spikelets sterile at their extremities three-compounded collected into a cylindrical crowded spike, fruit ovate acuminate convex-plane subangular divergent, stem very acutely triangular, leaves rather broad. *Lichtf.* p. 547. *E. B. t.* 507.

11a. Wetishy places by the sides of water. Fl. June. ♀.

Two feet or more high, stout. Bracts small, setaceous. Spike large, greenish. Fruit pale, rough at the margin of the lengthened extremity, and bited at the point.

11. *C. paniculata* (great panicle *Cori*), spikelets sterile at their extremity three-compounded and collected into a panicle spike, fruit broadly ovate acuminate gibbous on both sides with a somewhat membranaceous margin towards the extremity. *E. B. t.* 1064.

S. smaller, spike very compact. *C. terrefuscula*, *E. B. J.* 1033.
 Has. Marshy places, occasionally. Bay Doolowla and at Kewdale,
 Banks of the Clyde near New Rápatrick, Boreling-hill, Mr. Gre-
 ville, Farber Loch, Mr. Street. Apple, Capt. Carmichael. *E. B. J.*
 Quinserry, Mr. T. Manning. Marsh at the foot of Dundas hill,
 Edinb., Mr. P. Neil. Banks of the Clyde, 5 miles beyond Hamil-
 ton, Mph. Marsh of Binstane, near Farber and Portland hills,
 G. Don. *Pl. Jun. X.*

Two to three feet high. Culm triangular, striated. Spike very loose,
 shining. Bractes small, subglabrous.—Future observations may
 teach me otherwise, but after a careful examination of numerous
 specimens of *C. panic.* and *C. tenu.* I can find no other difference
 than what I have noticed above, and heartily concur with Wal-
 lenberg in stating them, namely that species suffers instead of
 gaining by multiplying species on such slight grounds.

†† Spikelets sterile at their base.

12. *C. stipitata* (small stipited Ceras), spikelets sterile at
 their base 3 or 4 distant, fruit ovate much attenuated convexo-
 plane subangular dimiduated rough at the margins, *Lightf.*
p. 149 (*C. muricata*), *E. B. J.* 806.

Has. Marshes in husky places, frequent. *Pl. May. Jun. X.*

A span or a foot high. Leaves nearly as long as the culm. Distin-
 guished by the few much beaked capsules, in small distant rounded
 spikelets, which spread when ripe in every direction.

13. *C. rufa* (red Ceras), spikelets sterile at their base about
 3 rather distant elliptical, sometimes very minute (except the
 lower one), capsules broadly ovate acute convex on one side
 and nearly plane on the other subtriangular with 3 teeth at
 the extremity. *Lightf. p.* 550 (*C. corniculata*). *E. B. J.* 1266.

Has. Bogs, but not common. In 1816, 7 miles from the coast,
Lightf. N. Quinserry, near Hadden How, Portland hills,
 and Boreling Bog, Mph., &c. *Pl. Jun. X.*

One foot high. Distinguished by its pale elliptical spikes, and imbricating
 capsules.

14. *C. acule* (point-spiked Ceras), spikelets sterile at the base
 oval about 5 approximate, fruit as long as the cul. ovato-
 acuminate convex on one side concave on the other with a
 membranaceous margin bifid at the point. *Lightf. p.* 147
 (*C. lapidaria*). *E. B. J.* 806.

Has. Bogs and marshy places, not unfrequent. *Pl. Jun. X.*

Culm 1 foot high, triangular. Spike brownish green, shining. Cal.
 glaucous surrounding the fruit. Bractes small, uppermost ones re-
 ssembling the glaucous.

15. *C. remota* (remote Ceras), spikelets sterile at the base
 distant, fruit longer than the cul. oblongo-ovate acuminate
 convexo-plane subtriangular obtuse at the margins the point

* *C. caespitosa* of Less. *Pl. Suec.* according to Wallenberg.

infid, bracteos very narrow reaching beyond the calyx.
Lichtf. p. 545. *E. B.* t. 532.

Hab. Woods and shady moist places. *Fl. June.* 2.

One foot or more high. Leaves very slender. Spikes small, erect, very distant.

*** Sterile and fertile flowers upon distinct spikes on the same culm.

† Sterile spike is nearly erect.

— *Sigism. L.*

16. *C. pendula* (great pendulous Carex), sheaths elongated nearly equal to the flowerstalks, fertile spikes cylindrical very long and drooping, fruit ovate shortly acuminate infid at the extremity closely indented, leaves broad. *Lichtf.* p. 564. *E. B.* t. 535.

Hab. Shady moist places, but not common. Broadbloom, De Street Roadside moor and Duke of Portland's park at Dorking, Mough Woods, Bothwell, and a little to the S. of Blagrove Priory. *Raph. Fl. June, July.* 2.

Culm 2—4 feet high.—This may always be distinguished by its long, pendulous, cylindrical spikes.

17. *C. strigosus* (great pendulous Carex), sheaths elongated equal to the flowerstalks, fertile spikes slender filiform nearly erect, fruit ovate-lanceolate curved slightly outwardly loosely indented, leaves rather broad. *E. B.* t. 534.

Hab. Antiquated woods, Edinb., Mough. *Fl. May, June.* 2.

One foot and a half to two feet high. Cal glumes a little shorter than the fruit.

18. *C. spinulosa* (pendulous Dwarf Carex), sheaths half as long as the flowerstalks, fertile spikes filiform rather slender slightly drooping, fruit broadly ovate much acuminate cleft at the point, leaves narrow. *Lichtf.* p. 562. *E. B.* t. 535.

Hab. Woods, not infrequent. *Fl. June.* 2.

In general habit much like the last, but the spikes are shorter and broader, and the fruit very different, being globose, and so assimilated as to resemble in a long beak. The cal glumes also not longer in proportion. Linnaeus tells us that this plant is used by the Laplanders, when roused and dressed, as a ridding to protect them from the cold.

19. *C. depensjensis* (stunted Dwarf Carex), sheaths much shorter than the flowerstalks, fertile spikes erect remote very few-flowered, fruit large nearly globose inflated terminating in a long beak bifid at the point. *E. B.* t. 1003.

Hab. Woods near Foulis, near, O. Dun. *Fl. June.* 2.

One or one foot and a half high. Spikes very distant; three few flowers, and large inflated beaked fruit, decidedly marking the species.

20. *C. Melchiorii* (down-spined Rack Carex), sheaths about half as long as the flowerstalks, fertile spikes 1—3 lower than

drooping, fruit scarcely longer than the cal. but especially the lower ones as in with a short beak bifid at the point. *Scholar. Car. i. Museum. t. 103. E. B. t. 3388. C. varioides, D. Don, MSS. anal.*

Hab. Rocky places on Craig-na-Chuileach in Brecklone, Mr. Barrett. Summit of Cairn Gorm, & Glen Mountains of Glen and Aberdeenshire, D. Don. Fl. June, July. Y.

Stems 8—12 inches high. Leaves dark green, linear. Glumes ovate, ferrugineous with a green nerve. Capsule green, till it is fully ripe. The flg. in E. B. is very characteristic.

21. *C. capillaris* (capillary Carex), stems almost half the length of the flowers, fertile spikes few-flowered but drooping, fruit as long as the acute membranaceous deciduous cal. oblong-ovate acuminate, *Lichtf. p. 327. E. B. t. 3389.*

Hab. Highland mountains, as Ben Tisherry, Craig-na-het, and Mael Ghobly, Brecklone, Dr. Stuart. Ben Lomond, Mough. Fl. June, July. Y.

Two to four inches high. Leaves mostly radical, scarcely half the length of the stem. One single flower includes the lower part of all the perianthes with its sheathing base. Sterile spike 1, frequently below the fertile ones. Fruit dark brown, shining.

22. *C. lanosa* (Mud Carex), sheaths extremely short scarcely any, fertile spikes oblong-ovate pendulous, bracteen substerile, cal. acute as long as the fruit, fruit elliptic-obovate obtuse shortly mucronated. *Lichtf. p. 328. E. B. t. 3390.*

Hab. Bogs and marshes, as at Tullymore, half a mile N. of Carrer, near Carr. &c. Dr. Stuart. Marsh near Fetter, plentiful. Dr. Don. Aggus, Dept. Carrachod. Marshes on mountains between Loch Einn and Tay, G. Don. Fl. June. Y.

Root very much creeping. Stems 8—10 inches high. Leaves very narrow. Fertile spikes 2; cal. glumes dark brown, subapiculate. Fruit greenish brown.

23. *C. variegata* (three-flowered sphaer Carex), sheaths very short almost none, fertile spikes narrow oblong very few-flowered but pendulous, bracteen substerile, cal. acute longer and broader than the fruit, fruit ovate somewhat acute obtusoid. *E. B. t. 3391.*

Hab. Mountains at the head of the Glen of Doll, Angharad mountains. Fl. June. Y.

Root creeping, as in the last sp. Culm short 3 inches in height. Leaves half their length, but broader than in the last. Cal. glumes very deep brown. Fruit acute. Very near *C. lanosa*, and united with it by Willdenberg. My specimens, however, appear distinct.

24. *C. Pseudo-cyperus* (Cyperus-like Carex), sheaths scarcely any (except sometimes to the lowermost bractee), fertile spikes upon long footstalks cylindrical pendulous, bracteen very leafy, cal. setaceous, fruit oblong very much acuminate divar. at the tips striated. *Lichtf. p. 329. E. B. t. 342.*

Hab. Boggy places by the sides of lakes, but not common, as in Isla, Sr., *Lagf.* Fl. July. γ .

Caues 2—3 feet high, acutely triangular. Leaves half an inch wide. One of the best marked and most beautiful up in the group.

23. *C. nitida* (scrubbed alpine Carex), sheaths elongated shorter than the flower-stalks, fertile spikes pendulous, bractes mostly leafless, fruit elliptical ovate beaked (black) tilld at the point. *E. B. t.* 2494.

Hab. Mountains of Chiv and Ben Lavee, G. Dec. Fl. July. γ .
Caues about a span high, leafy at the base, with short, rather broad, leaves. Fertile spikes γ , remarkable for their blackened base.

24. *C. nigra* (black Carex), sheaths scarcely any, fertile spikes pedunculated ovate pendulous, the terminal one with sterile flowers at the base, bractes subuloseous, fruit roundish ovate depressed with a short beak tilld at the point. *Lagf.* p. 555. *E. B. t.* 2044.

Hab. Highland mountains, frequent, as upon Benlochney, Mac-Gilly, Mac-Gilg, Mac-Gilg, Mac-Gilg, &c., in Benlochney, *Lagf.* Fl. June. γ .

About 1 foot high. Leaves unusually broad for the size of the plant. Glumes exceedingly dark brown, opaque. Fruit pale yellowish brown.—This differs from the other species of this division, in having no distinct sterile spike, only a few antheriferous glumes in the lower part of the terminal fertile spike, although in general habit perfectly agree with the remainder of the division.

25. *C. pallens* (pale Carex), sheaths scarcely any, fertile spikes pedunculated oblongo-cylindrical subpendulous, bractes subuloseous, fruit ovate-elliptical round obscure glabrous, *Lagf.* p. 558. *E. B. t.* 2183.

Hab. Marshy places, not unfrequent. Fl. June. γ .

A foot or more high. Leaves slightly pubescent. Spikes obtuse, pale green. Fruit very obtuse.

26. *C. flava* (yellow Carex), sheaths short about equal to the flower-stalks, bractes long foliaceous, fertile spikes roundish oval, fruit obovate with a long recurved beak tilld at the point. *Lagf.* p. 551. *E. B. t.* 1254.

β . smaller, fruit less recurved. *C. flava*, *E. B. t.* 1773.

Hab. Bogs, not uncommon, both α and β .

Caues 6—8 inches high, triangular, acutely glabrous. Bractes very leafy. Spikes, and indeed the whole plant, of a yellowish hue. Leaves rather broad, acuminate.

27. *C. frida* (stony Carex), sheaths elongated shorter than the flower-stalks, bractes foliaceous, spikes oblongo-ovate distinct rounded ovate inflated concave tilld at the point, rather scabrous. *E. B. t.* 1254.

Hab. Roadside between Montrose and the N. Esk river, G. Dec. (Cham. monticola and elsewhere in the Highlands, not rare, *D. Dec.* Fl. June. γ .

Very near *C. distans*, but distinct in the fruit, which is more suddenly beaked, and greatly broader and rounder.

20. *C. antea* (long-bracteated *Cereus*), shrubs very short sparsely any with extremely long foliaceous bractes, fertile spikes subovate oblong, fruit ovate somewhat beaked crested bifid at the point, leaves very narrow, culm glabrous. *E. B. t.* 833.

Hab. Shrubland between Stanley-ham and Abbebury; and on the coast 2 m. E. of St. Andrews, Mr. Chalmers. *St. June* 2.

Culm about a foot high.—Very distinct from *C. distans*, with which it has been confounded, in its very narrow, coriaceous leaves, besides the want of a long beak to the fruit.

21. *C. distans* (slenderly-jointed *Cereus*), shrubs elongated short equal to the flowerstalks, bearing foliaceous bractes, fertile spikes oblong erect, cal. mucronate, fruit ovate somewhat inflated subtriangular depressed with rather a short beak bifid at the point. *Ligdyf.* p. 361. *E. B. t.* 1224, and 1225 (*C. Alvarici*).

Hab. Marshes and wet pastures, not infrequent. *St. June* 2.

Culm 1—1½ feet high, slender.—Spikes very distinctly placed, their rather long peduncles entirely concealed by the sheathing bases of the leaves.—I can discover no difference between *C. distans* and *C. Alvarici* of Smith; the 2 principal ribs upon the fruit which he describes, and which give the name to the latter sp., being nothing more than the margined angles which are common to many other individuals of this genus. The fruit, indeed, is more highly coloured.

22. *C. parvus* (small *Cereus*), shrubs short scarcely any equal to the flowerstalks, fertile spikes oblong approximate, cal. oblique-oblong, fruit obovate subtriangular acute pubescent. *E. B. t.* 1069. *Ligdyf.* p. 351 (*C. montana*).

Hab. Dry pastures and heaths, frequent. *St. April, May* 2.

Root creeping. Culm 2 inches to a foot in height. Leaves short, rather broad. Lower bractes small, but foliaceous; upper ones very minute. Fruit tomentose.

23. *C. pediformis* (round-fruited *Cereus*), shrubs none, bractes small subulnarous, fertile spikes ovate roundish approximate, cal. mucronate, fruit obovate-globose acute pubescent, culm weak scabrous. *Ligdyf.* p. 354. *E. B. t.* 895.

Hab. Moorish ground, frequent. *St. June* 2.

Culm varying much in height, from 6—12 inches; slender. Seedily distinguished by the persistent, almost spherical, capsule, which give name to the species.

24. *C. parvus* (joint-leaved *Cereus*), shrubs elongated shorter than the flowerstalks, fertile spikes subcylindrical with distant flowers, bractes foliaceous, fruit subglobose somewhat inflated obtuse glabrous reflex at the point. *Ligdyf.* p. 358. *E. B. t.* 1505.

Hab. Marshy places and bays, common. Fl. June. β .
Stems 1-1½ feet high. Leaves rather broad, very glaucous, and rough
at the edges. Cal. glumes dark brown, their keel green. Flag
greenish leaves.

26. *C. virens* (glaucous Marsh Clover), sheaths short scarcely
any, bractless suboblongous, fertile spikes rather broad-based decap-
ing, fruit obovate-globose obtuse rather fleshy entire at the
point. *E. B. t.* 1893.

Hab. Marsh meadows and woods. In the S. of Honolulu, Oahu. About
Gleag, Moke. Apia, Cape Carmichael. Fl. June. β .

Leaves mostly radical, short, broadish. Culms about 1 foot high. Fer-
tile spikes 2. Fruit closely placed, brownish.

++ *Stigma 2.*

26. *C. pallis* (ruddy Clover), sheaths none, bractless suboblong,
fertile spikes ovate the lower one predominant, cul oblong,
short subglobose apiculate with a short beak. *E. B. t.*
1894.

Hab. Wet Lawes, Mr. J. Mackay in S. B. Banks of the Titi, Pesti-
cium, Anderson. Fl. June. β .

Stems to 1½ inches high. Leaves rather broad. Glumes dark brown,
fruit brownish.

27. *C. compressa* (upland Bay Clover), sheaths none, bractless
oblongous varicoid at the base, spikes usually oblong or subcy-
lindrical obtuse, fruit broadly elliptical. *Lophy. p.* 166. *E. B. t.*
1897.

Hab. Marshes and wet pastures, frequent. Fl. June. β .

a. leaves narrow erect somewhat barbed, spikes subcylindrical,
cul. generally shorter than the fruit. *C. compressa*, *Lophy.*
p. 166. *E. B. t.* 1897.

b. leaves broader recurved rigid, spikes oblong, cul. generally as
long as the fruit. *C. rigida*, *E. B. t.* 1897. *C. maritima* P.
Wahl. Lapp.

Hab. a Marshes and wet pastures, frequent. β Banks of the
Highland meadows, provided. Fl. June, July. β .

It is no wonder that foreign botanists should be at a loss to know our
C. rigida; for there is no variety so specific mark to distinguish it
from *C. compressa*, nor any difference which is not accounted for by
its different place of growth.—It is the alpine state of it.

One foot and a half high. Leaves rather long, erect, barbed.

28. *C. stricta* (narrow-leaved Clover), sheaths none, bractless
with small varicles at the base short suboblongous, fertile
spikes sharply acute cylindrical-filiform sessile, fruit ovate
somewhat acute glaucous above on each side, sides nearly angu-
lar straight. *Lophy. p.* 161 (*C. compressa* β). *E. B. t.* 1914.

Hab. Marshy places by the side of water. Banks of the water of
Lehi, above Curran, Kohala. Moke. Bay Kamae, and near Kah-
lowe, Moke. Bays, not infrequent, O. Iwa. Fl. May. β .

Two feet and more high. Leaves rough, glaucous near the base.

Spikes very long, erect. Cal. glaucous lanceolate, dark brown.

†† Sterile spikes several on a culm (as *C. latigata*, mostly solitary).

* *Slipcase 2*

39. *C. acuta* (slender-spiked *Carex*), slender more, bractless long foliaceous, sterile spikes long cylindrical acuminate decur-
ent erect when in fr., fruit oval swelling subacuminate and so
at the point, culm acutely angular scabrous. *E. B. t.* 330.

Hab. Moist meadows and watery places, frequent. Fl May. ♀.

Two to three feet high. Leaves broad, scarcely glaucous, rough.

** *Slipcase 2*

40. *C. pedunculata* (less common *Carex*), slender more, bractless
very long foliaceous, cul. of the sterile spike obtuse, fertile
spikes cylindrical obtuse, fruit oblongo-ovate acute bifid at the
point striated. *Egghj.* p. 146 (*C. riparia* B.). *E. B. t.* 330.

Hab. Banks of rivers and ditches, common. Fl May. ♀.

Two feet or more high. Leaves very broad, beaked, rough.

41. *C. riparia* (great common *Carex*), slender more, bractless
very long foliaceous, cul. of the sterile spike acuminate, fertile
spikes acutely pedunculated broadly cylindrical acute, fruit
ovate subacuminate bifid at the point. *Egghj.* p. 145 (*C.*
acuta). *E. B. t.* 329.

Hab. Sides of ditches and rivers, common. Fl May. ♀.

Larger than the last, with much broader leaves and spikes, and well
distinguished by the acuminate cul. ends of the sterile spike.

42. *C. horrigata* (smooth-stalked *Beaked Carex*), slender dis-
tinguished shorter than the flowers, bractless foliaceous, sterile
spikes drooping cylindrical, all the cul. acuminate or mucro-
nate, fruit ovate triangular with rather a long acuminate
beak bifid at the point. *E. B. t.* 1215.

Hab. Marshes in Argentina, G. Rio. Cardenas, 4 m. N. W.
from Kinkaidly, N. Chaco. Marshes N. of Miquisne and wet
woods E. of Mapochoway, High. Fl June. ♀.

One foot and a half high. Leaves broad, but rather short. It has
scarcely more than 1 sterile spike, but its similarity to the follow-
ing species induces me, as Smith has done, to place it in this di-
vision. Besides the difference in the fruit, the want of a sheathing
leaf to the bractless will always distinguish *C. americana* from this
species.

43. *C. venosaria* (large-fruited *Bladder Carex*), slender more,
bractless foliaceous long, fertile spikes cylindrical slightly droop-
ing, cul. lanceolate, fruit broadly ovate full and subobtus-
rostrate deeply bifid at the point. *Egghj.* p. 147 (*C. byblaea*). *E. B.*
t. 778.

Hab. Bogs and swamps. Fl June. ♀.

One foot and a half high. Leaves rather broad. Culms acute, angu-
lar. Root tufted, very large, shining, much reticulated.

44. *C. angustifolia* (small-fruited Bladder Carrut), sheaths none, bractless foliaceous, fertile spikes cylindrical long nearly erect, cal. lanceolate, fruit rounded subglobose inflated apiculate-ventrate slightly tilted at the point. *Lighf.* p. 363 (C. *aristatifolia*).

Hab. Bogs and marshes, frequent. Fl. June. Y.

Differs from the last in the longer, slenderer spikes, with much more numerous flowers. Fruit brownish, not half so large, and of a different shape.

45. *C. stricta* (slender Carrut), hairy, sheaths elongated nearly equal to the flowerstalks, bractless long foliaceous, fertile spikes short cylindrical distant their cal. capsulate, fruit ovate with a long beak hairy. *Lighf.* p. 363. E. B. t. 688.

Hab. Wet pastures and woods, frequent. Fl. June. Y.

One foot to two feet high. More or less hairy in every part.

46. *C. filiformis* (slender-leaved Carrut), glabrous, sheaths scarcely any, bractless long very narrow, fertile spikes shortly pedunculate oblongo-cylindrical their cal. subscapulate, fruit ovate shortly beaked tilted at the point very pubescent. *Lighf.* p. 363. (C. *constricta*). E. B. t. 684.

Hab. Marshes. Kewidge-coll, Mr. Grenville. Pontant Moss, Forbes, G. Don. Bog near Annacora, Mr. Brown. Fl. June. Y.

One to two feet and a half high. Leaves slender; their margins involute, flaccidulous at their base near the root.

3. TETRANDRIA.

7. ERMICALLON.

1. *E. septangulare* (seven-angled Pignaret), scape striated longer than the cellular compressed sessile glabrous leaves, head of leaves glabrous its cut. scales without flowers glabrous the interior ones as well as the perianths ciliato-pubescent at the extremity. stam. 4. *Lighf.* p. 369 (E. *decangulare*). E. B. t. 733. Hook. in Fl. Lond., with a fig.

Hab. Said to be discovered in 1766* by Mr. Kinnear, a pupil of Dr. Huxley's, in the lake of Skye. Eight-foot afterwards gathered it, in company with his Tennant, in two or three small fresh water lakes, about a mile west of Loch Shigachan, in the lake of Skye, but particularly in a small lake called Loch-na-Caileich, close to the road-side between Shigachan and Drynagh. Fl. Sept. Y.

Plant forming great balls, which often float. Root fibrous, white, articulated. Leaves petiolated, beautifully cellular. Scape about 1 foot high. Head of flowers small, round, whitish purple.

* Mr. Macpherson has communicated the following note to me, which he found in the Herbarium of the late Dr. Walker of Edinburgh, attached to specimens of *Elodea septangulare*, in that gentleman's handwriting:—"In a small lake by the roadside leading from Glasgow to Gleska, in Skye, 11th Sept. 1766. Sir John Macpherson, who before this noticed it, leaped from his horse, waded into the lake and brought it out."

8. LITTORELLA.

1. *L. linearis* (*Platanus Sideroxylon*). *Lighf.* p. 571. *E. B.* 2. 468.

Hab. Common in most of the Scotch lochs, near the margins. Fl. July, Aug.

Plant growing in thick tuks. Leaves entirely rolled, linear, fleshy, semicylindrical, about 2 inches long. Stipes several. Sterile flowers upon scapes of 2-3 inches long. Calyx of 4 equal segments. Cor. with the tube inflated, 4-lobed. Filaments twice the length of the cor. Anthers yellow. Fertile flowers male, 2, sometimes 3, together, among the bases of the leaves, without any cal. Cor. 3- parted, closely embracing the germ, which is terminated by a long, filiform style.

9. ALNUS.

1. *A. glutinosa* (common *Alder*), leaves rounded cuneiform obtuse lobed at the margin and serrated somewhat glaucous downy on the sides of the leaves beneath. *Lighf.* p. 576, and *E. B.* 1. 1408 (*Betula Alnus*).

Hab. Wet and boggy grounds, frequent. Fl. May. 6.

A well known tree, whose wood is much employed for various purposes, and is particularly valuable for the piles of bridges, &c., as its property is to remain undecayed under water for a considerable length of time. The bark and leaves are employed in dyeing and tanning leather, and the former for staining hairdressers' wigs; its retreating quality adapting it to this use. Stems rather long, large, and cylindrical, pendent, their Lenticels branched. Bark outside smooth, white, with deep red scales. Lightfoot mentions a var. which has hairy leaves, more acute and less marked.

10. URTICA.

1. *U. urens* (small *Nettle*), leaves opposite elliptical with about 8 ribs, clusters of flowers nearly simple. *Lighf.* p. 578. *E. B.* 1. 1286.

Hab. Waste places, dingleills, &c. Fl. July—Sept. 7.

Stems about 1 foot high—This is by far the most creeping of the Scotch nettles.

2. *U. dioica* (great *Nettle*), leaves ovate acuminate cordate at the base, clusters of flowers male branched in pairs nearly dichotomous. *Lighf.* p. 578. *E. B.* 1. 1730.

Hab. Waste places and hedge banks, abundant. Fl. July, Aug. 11. The roots, boiled with alum, dye yarn of a yellow colour. Of the fibres of the stalk a kind of hemp has been manufactured. The young tops of nettles are frequently boiled and eaten by the common people; and in Arden, and other of the Western shires, a remade is made of a strong decoction of nettles. According to Lighf., a quart of milk is put in 2 pints of the decoction, which is then bottled and fit for use. A common spoonful of this liquor will coagulate a large bowl of milk very readily.

4. PENTANDRIA.

11. BRYONIA

1. *B. alba* (red-leaved Bryony), leaves palmate rough on both sides, flowers dioecious. *Lepchf.* p. 560 (*Bryonia alba*). *E. B. f.* 438.

Fls. Sometimes seen in garden hedges and near houses, but probably not indigenous. *Fr. Beryon.* *H. May.* N.

Stem exceedingly large, white and branched. *Stems* long, slender, branched, weak, and climbing, with simple tendrils. *Leaves* large, 3-lobed, the lobes unequal. *Flowers* in axillary clusters. *Cal.* whitish, with green veins. *Stems* red.—Full of a hard, acid juice.

5. POLYANDRIA.

12. CERATOPHYLLUM

1. *C. demersum* (common Hornwort), leaflets armed with three spines. *Lepchf.* p. 560. *E. B. f.* 447.

Fls. Under water in slow streams and ditches, common. *H. July.* N. *Stems* long, slender, and much branched. *Leaves* whorled, dichotomous, linear, verrucous, strongly veined. *Flowers* whorled, in the axils of the leaves, small. *Anthers* several, rounded, spotted. *Germen* with 3 unequal spines—longer than the rest, and terminated by a more or less curved, subulate style.—Are the spines upon the fluit of this plant sufficient to form a specific distinction between *Fls.* and *C. submersum*?

13. MYRPHYLLUM.

1. *M. spicatum* (spiked Water Ailanth), sterile flowers in interrupted leafless spiked whorls. *Lepchf.* p. 581. *E. B. f.* 87.

Fls. Ditches and stagnant waters, common. *H. July.* Aug. M. *Stems* slender, much branched. *Leaves* 4 together in a whorl, broadly pinnatifid, and always under water. *Spathes* slender, 2—2 inches long. *Petals* small, reddish. *Anthers* yellowish.

14. ARUM.

1. *A. maculatum* (Cuckoo-pint, or Wake-robin), leaves all radiated hastate-cordate, lobes deflexed, spathe club-shaped obtuse shorter than the spathe. *Lepchf.* p. 525. *E. B. f.* 1159.

Fls. Hedges and shady places, but not frequent. Woods at Bath: well and Hamilton, High. Woods at Delford, abundant, and Bapstall, near Bristol, May. Chalk woods, Mr. Street Upon Inghelstone, Loch of Morar, Mr. Farqu. 21 April. N.

Stems tuberous, affording no abundant fructus, which, if properly prepared, for it is of a poisonous nature, proves an excellent sudorificum for the third stage, and is sold for that purpose in great abundance at Weymouth and on the Portland Island. *Leaves* large, shining, often spotted with black. *Spathe* more or less consublate, large. The germens are at the base of the spathe: above is a ring of 2-lobed sessile anthers, and above these another ring of apparently shorter germens. The spathe is long, club-shaped, and of

a purplish colour. Berries crowded into an oblong spike, of a bright scarlet colour.

13. POTENILLA

1. *P. Sagittaria* (common Burnet), leaves none, stem somewhat angular, stemmers much longer than the cal. *E. B. t.* 566.
HAB Dry pastures, occasionally. Sandy heath near the Clack at Dufsch, Plock. Dahlen, Dr. Brown. Road-side between Dan-
zinskie and Sallin; and Eiden hills, near Minske, May 23. July 2.

Stems 1—2 feet high. Leaves glaucous. Lengths great, serrated. Stems an length terminal spike, in round heads of a dull purplish colour. Berries *B.* mostly at the base; petals open mostly at the extremity. Style much exserted, with a large radiated stigma.

14. QUERCUS

1. *Q. Robur* (common British Oak), leaves deciduous. Serrated towards the extremity, obscurely oblong serrated and lobed their sinuses rather acute their lobes obtuse, laminae elongated. *Eph. t.* p. 181. *E. B. t.* 1242.

HAB In the Lowlands, frequent, in the Highlands very sparingly, seldom extending to a trunk, except in sheltered situations near gentlemen's houses, *Eph. t.* p. 181. *B. t.* May 15.

The uses of the wood and the bark of this most valuable tree are too generally known to require that I should speak of them here. The acorns were formerly the food of our British swine; but are now left to hogs and squabs.

2. *Q. crastiflora* (petiole-fruited Oak), leaves deciduous petioles oblong serrated and lobed the sinuses rather acute the lobes obtuse, fruit sessile. *E. B. t.* 1843.

HAB Rarely woods, Along Edge of Russian Wood, near Danzig, and it is probably not uncommon. *Stach. t.* May 15.

This species is well distinguished from *Q. Robur* by its sessile fruits. Its wood also is said to be very inferior to that of the common oak.

15. CASTANEA

1. *C. vulgaris* (Spanish Chestnut Tree), leaves oblongo-lanceolate acuminate serrations serrate glabrous on each side. *De-
cand. t.* p. 181. *E. B. t.* 886 (Fagus Castanea).
HAB. This occurs in plantations, but is not indigenous. *Eph. t.* p. 181. *B. t.* May 15.

Surely a distinct genus from *Fagus*, although the learned and careful author of *E. Bot.* is of a different opinion, and sometimes *Castanea* for separating it. This beautiful tree is now much cultivated in plantations for its timber. Evelyn tells us "a lady formerly built a good part of our ancient houses in the city of London. I had once a very large house near the city entirely dressed of it." It is of durable excellent timber for palisades and props for vines and hogs. It is good for mill timber and the water-wheels; but if water touch the roots of the growing tree it spoils both the fruit and timber.

The fruit is much used as an article of food in the S. of Europe, and in parts of France I have had them served up for breakfast, baked in milk.

18. FAGUS

1. *F. sylvatica* (*Horch Tree*), leaves acute glabrous abscutely dentate, stipe margins ciliolate. *Lichtf.* p. 564. *E. B.* t. 2146.

HAB. Woods and plantations, frequent. *Fl.* May. *fr.*

This tri-lobate-ovulate cluster, especially that variety which arrives its leaves through the winter. The wood is employed for an infinity of purposes by carpenters, joiners, wheelwrights, &c. Slices are driven into the bark of beech to keep upon the mast in Autumn.

19. BETULA

1. *B. alba* (*Common Birch Tree*), leaves ovate-deltoid acute doubly serrated glabrous. *Lichtf.* p. 573. *E. B.* t. 2138.

HAB. Woods, plentiful, especially in the Highlands. There is a var. of this, with remarkably drooping branches which are more curly than in the common appearance, not uncommon in the Highlands, and generally known by the name of the drooping birch.

The wood is tough and white and is used for various purposes. Much is burned into charcoal. Brooms are made of it. Of the bark in some countries hair and distilling cups are formed, and of the sap a wine is produced by fermentation.

2. *B. nana* (*Dwarf Birch*), leaves orbicular ovate. *Lichtf.* p. 575. *E. B.* t. 2139.

HAB. Abundant in Corry-y-calla, N. of Glen Lyon, in Spenshallbarr also near Loch Glenc. Near Glenc, and Larch of Breton, 1 mile from Camowath, Clydesdale. *Lichtf.* Her. Lanen. *Mr. Wark.* *Fl.* May. *fr.*

This is a small, shrubby plant, not exceeding 1—2 feet in height. The leaves are so short lanceolate. Petiole cartilag at the extremity of the branches, small. Even the handle sheds the poor Lapplander takes to account. It is almost all he needs with in certain situations that can be converted into fuel for burning and drying away the goats; and, covered with the rein-deer's skin, it serves him for a bed.

20. CARPINUS.

1. *C. Betulus* (*Hornbeam*), scales on branches off the fruit oblong serrated with 2 smaller lateral lobes. *Lichtf.* p. 584. *E. B.* t. 2032.

HAB. Woods and plantations. *Fl.* May. *fr.*

Rather a small tree with taste or subcordate, doubly serrated, acute leaves, of which the veins are serrated a little, and which are beautifully plumed when in the act of expanding. The wood of the Hornbeam is white, tough, and hard, and burns like a candle. It is used in many ways, for implements of husbandry, carts of wheels, &c. The inner bark produces a yellow dye.

21. CORYLUS.

1. *C. Avellana* (*Afnale-maf*), stipules-oblong obtuse, lower margin lob-cusate pointed, involucre of the fruit coriaceous rather spreading torn at the margin. *Egghyf*, p. 358. *E. B.* t. 723.

Han. Woods, very frequent. *R. March*, April. $\frac{1}{2}$.

The Hazel wood is employed for a number of domestic and agricultural and some superstitious purposes, and makes an excellent charcoal for drawing. The Natives much esteemed it, though sympathetic Tastes, in large quantities, from their indigenous nature. It is of the young forked twigs of this plant that the celebrated dancing rod (*magick charmer's*) is taken, with which individuals even in our days and in our country have believed that they possessed the power of discovering springs of water, when nothing on the surface of the earth indicated their existence. A curious account of this faculty, supposed to be inherent in the person of a lady of high rank, is given in a note in a most valuable essay on "the popular Mythology of the middle Ages," in the 41th Vol. of the *Quarterly Review*, p. 373.

22. PINUS.

1. *P. sylvestris* (*Scotch Fir*), leaves in pairs rigid, cones coriaceous acute as long as the leaves generally in pairs. *Egghyf*, p. 357. *E. B.* t. 740.

Han. Conifers most natural forests in many parts of the Highlands. *R. May*. $\frac{1}{2}$.

A tree of great value but little beauty, except indeed when it grows in large masses, as in some of the Highland forests. It affords the red or yellow deal. The bark has been used with much success in tanning, and in the northern parts of Europe it is made into a wretched substitute for wood. Tar and pitch, and turpentine, are the produce of this tree; and in the Highlands the trunks soon afford a succulentum for cattle.

XXII. DIOECIA.

(MONAXEAE.

Sella purpurea, *Helix* and *Lupulivina*.)

I. DIANDRIA.

1. *Sella*. *Serra* Fl. Scales of the corolla single-flowered, unbristled, with a nectariferous gland at its base. Perianth 4. Stam. 1-2.

Fertile Fl. Scales of the corolla single-flowered. Perianth 4. Stigma 2, often cleft. Caps. 1-celled, 2-valved, many-seeded. Seeds common.

2. TRIANDRIA.

2. *EMERGENTUM*. Barren fl. Cal. tripartite. Cor. of 3 petals (σ in E. S.). Stem. 3 (9 in E. S.), upon long filaments.

Fertile fl. Cal. tripartite. Cor. of 3 petals. Style very short. Stigma with 4—5 rays. Berry superior, globose with 6—8 seeds.

3. *BOSCHIA*. Barren fl. Perianth single, of 6 leaves. Filaments united into a tube. Arch. 3—6.

Fertile fl. Perianth single, of 6 leaves. Nectaries tubular.

Style 1. Stigma 1. Berry superior, 3-celled. Cells 2-seeded. (*Palicourea dioica*, TRINCH. *Solanum triandrum*, and *lanceolatum*, OUD. DIENCK.)

3. TETRANDRIA.

3. *MYRICA*. Barren fl. Scales of the corolla concave. Perianth 0.

Fertile fl. Scales of the corolla concave. Perianth 0. Styles 2. Drupe 1-celled, 1-seeded.

4. *VIORICA*. Barren fl. Cal. 0. Petals 4, dilated at the base, connate, resembling a cal. Anthers sessile, adnate with the petals.

Fertile fl. Cal. subamalgamate. Petals 4, dilated at the base. Style 1. Berry (Drupe) inferior, 1-seeded.

(*Rhus coriaria*, PINCH. *Urtica dioica*, MEXIC.)

4. PENTANDRIA.

4. *HUMULUS*. Barren fl. Perianth single, of 5 leaves. Arch. with 2 pores at the extremity.

Fertile fl. Scales of the corolla large, persistent, concave, entire, single-flowered. Perianth 0. Styles 2. Seed 1.

(*Bellis alpina*, PINCH. *Brassica dioica*, MEXIC. *Solanum pentandrum*, OUD. DIENCK.)

5. OCTANDRIA.

5. *HAEMODIA*. Barren fl. Cal. quadripartite. Petals 4. Nectaries 4, emarginate.

Fertile fl. Cal. quadripartite. Petals 4. Nectaries 4, emarginate. Germen 4. Caps. 4, many-seeded.

7. *PARULUS*. Barren fl. Scales of the corolla lacinated. Anthers 8—30, arising from a tubulate, oblique, entire, single perianth.

Fertile fl. Scales of the corolla lacinated. Perianth tubulate (entire)†. Stigma 4. Caps. superior, 2-celled, 2-valved, many-seeded. Seed convex.

6. ENNEANDRIA.

8. *MASCHUATA*. Barren fl. Perianth single, tripartite. Stem. 9—12. Anthers globose, 2-lobed.

- Fertile Fl. Perianth single, tripartite. Styles 2. Caps. 2-celled, cells 1-seeded.
10. *HYDROCHARIS*. Barren Fl. Cal. tripartite. Petals 3, "the 3 interior filaments beaked," *Son*
- Fertile Fl. Cal. tripartite. Petals 3. Styles 6, each with 2 stigmas. Caps. inferior, scarious, roundish, 2-celled, many-seeded.

(*Eupetrum*, Ord. TRIANDR.)

(*DIANDRIA*.)

Lysichiton albus, Cl. DRYAND. PENTAG.)

(*ICHOANDRIA*.)

Rubus Chamaemorus, Linn. POLYAND.)

(*POLYANDRIA*.)

Spiræula alba, POLYAND. PENTAG. *Populus nigra*, Ord. OXYAND.)

7. MONADELPHIA.

11. *JUNIPERUS*. Barren Fl. Scales of the corolla subopposite. Perianth 9. Stam. 4—8, 1-celled.
- Fertile Fl. Scales of the corolla few, winged, at length beaky, and surrounding the 3-seeded berry.
12. *TAXUS*. Barren Fl. Perianth single at the base. Stam. numerous. Anthers pointed, 6—8-celled; cells opening beneath.
- Fertile Fl. Perianth single, imbricate, scaly. Style 9. Drupe beaky, perforated at the extremity.

(*Salix rubra*, Ord. DIANDR.)

1. DIANDRIA.

1. SALIX^a.

^a Leaves serrated, smoothish, especially above.

1. *S. purpurea* (darker purple *Willow*), monandrous decumbent, leaves lanceolate-lanceolate upwards serrated glaucous, gemmae coats very pubescent smooth, stigma usually smooth. *Lig. & f.* p. 398. *E. & f.* 1388.

HAB. Banks of the Edd, near Northby, in Eskdale, *Lig. & f.* N bank of the river Twerd, opposite Melrose, Mough. Fl. March, Apr. 7.

^a The following specific characters of this new latinate genus are taken in every instance, where not otherwise conditioned, from specimens that are the best authority for the *E. & f.* species, that is, from individuals gathered in the late Mr. Crum's garden near Northby, in company with Mr. Crum himself, as well as James Smith. If any characters differ in some measure from those published by Smith, it will show how variable are these plants, and how careful we ought to be in not multiplying the species unnecessarily by future observations, I think, will warrant the reduction of the present very extensive list of British willows.

2. *S. Hella* (Rose Willow), monandrous erect, leaves lanceolate broadest upwards serrated glabrous, gemmas oblongo-ovate very pubescent sessile, style short, stigma small 2-lobed. *Lichtf. p. 537. E. B. t. 1441.*

Hab. Meadows and the banks of rivers, frequent. Fl March, Apr. 5. Surely *Hella* was right in naming this and the last species. There is no difference in the shape of the leaves. That in the stigma and style is very telling?—I have this species from Switzerland, with pubescent leaves on both sides.

3. *S. Lambertiana* (Baptist Willow), monandrous erect, leaves lanceolate broadest upwards serrated glabrous, gemmas shortly ovate very pubescent sessile, stigma rarely sessile. *E. B. t. 1339.*

Hab. Banks of the Water of Leth, above Colcridge, and banks of the Esk, above Musselburgh. Fl April. 5.

A very slight var. indeed, in my opinion, of *S. purpurea* or *Hilla*.

4. *S. calva* (grey Cat), stem 2 united at the base, leaves linear-lanceolate serrated glabrous green on both sides, capsule oblongo-ovate very pubescent sessile, style elongated, stigma rarely 2-lobed linear. *E. B. t. 1145.*

Hab. Hedges and other grounds, frequent, D. Dec. Fl April, May. 5.

Leaves 4—6 inches long. Reckoned among the most valuable of the cat tribe.

5. *S. Cerasus* (broad-leaved monandrous Willow), "monadelphous, leaves elliptical" (obovate-elliptical acute) "reticulate-veined quite glabrous glaucous beneath," Sm. *E. B. t. 1146.*

Hab. Glen Nevis, Mr. Brown. Fl April, May. 5. I have no flowering specimens of this plant, nor has Smith himself seen the gemmas.

6. *S. tremula* (short-leaved triandrous Willow), leaves oblongo-lanceolate acute serrated glabrous, gemmas pedicellate oblongo-ovate glabrous as well as the scale, stigma sessile lobed. *E. B. t. 1433.*

Hab. Moist places, not uncommon, D. Dec. Near Craiglockhart, 3 m. N. W. of Edinburgh, Abney. Fl April, May. 5.

As excellent cater. food, as in its caterpillars, acute, elliptic, marked. Grown brown, rather lax. *Arctia pallens*.

7. *S. lancolata* (long-leaved triandrous Willow), triandrous, leaves lanceolate acuminate serrated glabrous, gemmas pedicellate oblongo-ovate glabrous, style elongated, stigma lobed, scales very elastic. *E. B. t. 1435.*

Hab. Angus-shire, G. Don. Fl April, May. 5. A small tree, and, like the last, according to Smith, eating its bark.

Said to be not so valuable as an cater, since the web is apt to split when parted, but very useful for house hangers, &c., &c.—The cater was almost equal to the previous in length.

8. *S. angustifolia* (Almond-leaved Willow), monandrous, leaves oblongo-lanceolate acute serrated glabrous, gemmas pedicellate

late acute glaucous, stigmas sessile bifid, scales glaucous or a little pubescent at the base. *Lepidif.* p. 381. *E. B.* t. 1836.
Hill. Banks of rivers, Dr. Pennar. 17 April, May. 5.

So very nearly do our specimens of this plant from South America correspond with *S. tricusata*, that, I must confess, had it not been for such high authority, I should have been disposed to do what Curtis has been contented for doing, and name this with that species. The leaves are called in *A. B. acuta*, but there is not an acute leaf in all my specimens, nor in the fig. in *A. B.* The stipules are described as large; but then they are afterwards said to vary in dimensions. It is indeed somewhat red inferior to *S. tricusata* in its hair, but that may arise from soil or other accidental circumstances.

9. *S. disciparia* (Jeddo Willd.), or variegated *Willdow*, "leaves lanceolate serrated very glaucous, petioles subglabrous, gemmae attenuated pedicellate, branches smooth and highly polished." *Sm.* *E. B.* t. 1837.

Hill. Same place only, Collington woods, Edinb., March. 17 May. 6.

Produces good seeds for herb-wood. I have seen no gemmae, else are they figured in *E. B.* It seems to possess few important characteristics useful, and is said to be very near *S. Knochiana*. *Sm.* 2 in my specimens.

10. *S. Russ-Glaura* (Jeddo Willdow), leaves lanceolate tapering at each extremity strongly serrated glaucous, gemmae pedicellate oblongo-sulcate glaucous, style elongate, stigmas bifid, scales lanceolate very narrow slightly dilated at pubescence. *F. B.* t. 1838.

Hill. Common near Edinb., March. 17 April, May. 6.

A tall tree with very long lanceolate leaves. Catkins long, lax. Seed intended for sowing.

11. *S. fragilis* (Jeddo Willdow), leaves ovato-lanceolate acute serrated glaucous, gemmae shortly pedicellate oblongo-ovate glaucous, style elongated, stigmas bifid, scales pubescent and much dilated. *Lepidif.* p. 397. *E. B.* t. 1840.

Hill. Banks of rivers in the Lowlands, frequent. Less frequent about Edinb. than *S. Knochiana*, Vauxh. 17 April, May. 6.

A large tree, with very fragile branches. The catkins seem to me exactly to resemble those of *S. laevigata*. *Sm.* from 1—3, according to Smith.

12. *S. pentandra* (pentandrous or sweet Bay Willdow), petioles short, leaves obovato-elliptical strongly serrated glaucous-lanceolate glaucous, gemmae oblongo-ovate glaucous nearly sessile, style elongated, stigmas bifid, scales absent or long in the gemmae glaucous or slightly pilose. *Lepidif.* p. 393. *E. B.* t. 1835.

Hill. Banks of rivers and watery places, not uncommon. 17 May, June. 6.

The most beautiful of our British willows, readily known by its large,

broad, bright, very shining leaves, and its broad sessile corolla, with numerous crowded yellow stamens. Smith says that the small yellow glands upon the backstalks of the leaves cause the agreeable fragrance of this plant.

13. *S. nigricans* (dark broad-leaved *W. Willow*), leaves mostly obovate entire crenate-serrate glaucous and often shiny beneath, petioles pedicellate lanceolate-mucronate very silky, styles elongated, stigmas mostly entire, scales villous. *E. B. L.* 1213.

HAB. Banks of the Ede, D. Don. Craigbrook, Edinb. (Scott. plant), March. Fl. April, May. 4.

Leaves dark green, turning black when dry, very variable in size, but always more or less elliptical or obovate, winged. Corolla rather short. Stamens long, extremely silky. Scales brownish or almost black at the tips. I have some plants from Scotland whose leaves are quite silky beneath, and a series of specimens gradually less so, till they have the common nearly glaucous appearance.

14. *S. affinis* (resembling dark green *W. Willow*), "leaves elliptical acute denticulate-serrate smoothish glaucous beneath, petioles pedicellate mucronate silky," *Sav.* Fl. B. L. 1806.

HAB. Banks of the Clyde, a little above Glasgow, March. Banks of the Ede, D. Don. Fl. April, May. 4.

I have never seen this species, but the characters do not appear at all to distinguish it from the last—"Grows in an upright bush. The leaves, with dark mahogany-colored veins," *Sav.* Grows and exists, according to the fig. as above quoted, exactly as in *S. nigricans*.

15. *S. petiolaris* (dark long-braced *W. Willow*), leaves lanceolate serrated glaucous glaucous and often silky beneath, "petioles pedicellate acute silky, stigmas usually 2-toothed," *Sav.* Fl. B. L. 1167.

HAB. Ford March, N. side of the canal, D. Don. Nether, Angusshire, D. Don. Fl. April. 4.

Of this I am unacquainted with the germens, which, according to Smith, are much shorter than in the two last species, which at the same time the leaves are longer and truly lanceolate—they, however, turn almost black in drying.

16. *S. radicans* (rooting-branched *W. Willow*), leaves obovate or elliptical-lanceolate with often wavy serratures glaucous glaucous beneath, petioles lanceolate pedicellate very silky as well as the scales, style elongated, stigmas sessile or bifid. *S. radicans*, *Sav. Fl. Brit.* p. 1653. *S. phylicifolia*, *E. B. L.* 1353; var. of *W. Willow* or *Lilac*.

HAB. Scotland, Duncraig. Banks of the river Nith towards Glasgow, March. Fl. May. 4.

No specimens are from St. James South, but they do not at all accord in the germens with the *S. phylicifolia* of Winkl., which that author considers to be the same as Linnaeus's. He describes and figures them as suberect and glaucous, and expressly says he never knew them to be arborescent. Unfortunately Linnaeus himself says nothing

about the premises—May not the present plant be the same as *S. thurensa*?

17. *S. polytricha* (Hedge-leaved Willow), leaves along shortly serrated at each extremity with silken very serrate glaucous had glaucous beneath, gemmae pedicellate sessile glaucous, style much elongated, stigma 2-lobed. *Line.*? *Phil.* *Trans.* p. 230. p. 17. f. 2.

Han. Bea. Lamm, Mr. Bower and Bush. *Fl. May*, June. ♀.

A small bushy shrub, with leaves of a much thinner texture than the last, and capsules of a totally different nature, more like those of *S. dimorpha*, from which again the leaves are widely different.

The veins of the cuticle is pubescent, and the small scales slightly so. The plant perfectly accords with Wahlenberg's figure and description.

18. *S. Arbuscula* (Little Tree Willow), leaves lanceolate shortly denticulate-serrate glaucous glaucous beneath, gemmae oblongo-ovate very silky pedicellate, style elongated, stigma entire. *E. B.* t. 1203. *Phil.* *Lapp.* p. 263. t. 16. f. 2.

Han. Highlands of Scotland, *Reichen*. Valley of the mountains of Glen, G. *Reichen*. Banks of the Mith 30 m. above Dundee, *May*. *Fl.* April. ♀.

"About 1 foot high, naked below, like a little tree," *Reichen*. *Reichen*. Leaves one or one inch and a half long, very minutely serrated, sometimes according to Smith and Wahlenberg along or entire. Cuticle short, very silky. Scales short, blackish, silky. My specimens become black in drying. Wahlenberg says his remains green in that state; and his plants have the leaves much more serrated than ours.

19. *S. Spida* (Field Willow) "leaves along nearly entire glaucous had beneath, gemmae pedicellate somewhat silky, stigmas nearly sessile 2-lobed." *Phil.* *Lapp.* p. 271. t. 16. f. 6. *S. arbuscula* v. *Edm.*

Han. Foot of Hailfoll, near Moffat, *May*. *Fl.* —. ♀.

"Glabrous entire above, and even along, about 1 foot high, the branches divergent, and almost deflexed, brownish. Leaves oblongo-rhomboid, lanceolate upwards, serrated at each extremity, villi rather than glaucous beneath. Scales not so long as the pedicel, shortly pubescent." *Phil.* *L.* c.

20. *S. vitifolia* (Yellow Willow, or golden Chair), leaves lanceolate with-rustaceous serratures glaucous above more or less silky beneath, gemmae lanceolate sessile glaucous, style short, stigma bipartite, scales lanceolate as long as the gemmae glaucous. *E. B.* t. 1203.

Han. Hedges and near grounds, not rare, D. *Reichen*. Near Dundee (this plant), *May*. Banks of the Clyde, frequent. *May*. *Fl.* May. ♀.

Branches irregularly yellow, and indeed the whole foliage approaches to that tint. It is rather an ornamented than useful tree.

21. *S. angustifolia* (filix-foemina *Walters*), "leaves elliptical acute serrated beneath glaucous beneath, stipules ob-ovate, capsules very smooth," *Ann. E. D. I.* 1836.

Has been in *E. D.* from the garden of Mr. T. Turner, who received it from Scotland $\frac{1}{2}$, near parts of Scotland, *D. Ann. II May, June.* $\frac{1}{2}$

This species I never saw. There are no specimens signed in *E. D.*

22. *S. myrsinites* (green *Walters* *Walters*), leaves oval serrated veined shining quite glaucous, gemmae axillary sessile lanceolate slightly dentic, style elongated, stigma bifid. *E. D. I.* 1830.

Has Mountains of Glencoe, Dr. Stuart. *Pl June.* $\frac{1}{2}$

A low, shining, bushy shrub, with dark, much branching stem and rounded oval leaves, not unlike some *Juniperus*, or more like, both in habit and dark colour, as Walden's well describes. The male cone. Leaves rigid, often hooked at the back, much veined. The flowers appear when the plant is in full leaf. Scales small, blackish, with silky long hairs.

23. *S. gracilifolia* (filix-foemina *Walters*), leaves ovate serrated more or less reflex glaucous beneath, gemmae axillary elongate-ovate extremely silky, style short, stigma notched. *Lepidif. p. 309* (*S. rep. similis*), according to Smith. *E. D. I.* 1831, and *i.* 1833 (*S. repens*).

S. lances. as mon-dilling. S. verrucifolia, E. D. I. 1841.

Has Brabantine mountains, Dr. Stuart. *Brit. is. edid. M. M. Nat.* March south from Hagenfeld Loch, near (S), High $\frac{1}{2}$ South of Scotland. *Pl April, May.* $\frac{1}{2}$

Leaves ovate, not shining like the first, and paler green. The flowers appear before the expansion of the leaves. Gemmae smaller, much more silky, and the scales longer and extremely silky, forming a very compact, cylindrical, shining crust. I can see no difference when seen thick or single, but in the leaves being narrower, they are white beneath only in a young state. I think the young leaves of the *S. repens* cannot constitute a species; besides which the veins are more or less apparent on different individuals: and in the specimens I have from Mr. James Smith there is no other character whatever.

24. *S. verrucata* (filix-foemina *Walters*), leaves ovate serrated glaucous beneath frequently folded up as to form a keel, gemmae sessile elongate-ovate extremely silky, style short, stigma notched. *E. D. I.* 1838.

Plant 2 feet high. Leaves generally longer than the first, and mostly remarkably narrowed by the laterally folding together of the two halves, but I see no other difference.

25. *S. Derrisana* (filix-foemina *Walters*), "leaves elliptical acute slightly toothed glaucous beneath, young branches very glaucous, cuticle white short stout silky," *Ann. E. D. I.* 1830.

Han. Scottish mountains, Dalziel. *R. April*. 4.

Specimens under this name, from my friend Mr. Harvey, who has paid great attention to this genus, precisely accord with what I have above called *S. rotundus* (*S. ptychotaba*, *E. B.*); and I can only add to the above character, that, if the *E. B.* plant be a good species, I am perfectly unacquainted with it.

26. *S. breviflora* (least *Willow*), leaves orbicular serrated glabrous shining retined, gemmae ovate lanceolate glabrous, stipules sessile bifid, crotches of four flowers. *Lightf.* p. 600, *E. B.* t. 1003.

Han. Summit of the Highland mountains, frequent. *R. June, July*. 4.

The fruit of our British species, though not so small as is generally supposed, for the stems descending creep below the surface of the earth, while the branches strictly rise on each side;—stems large, but soon dipping and shedding its seeds, which are furnished with three wings or cuspidate appendages.

“*Leaves sub-entire, here or less being so silky.*”

27. *S. rotundata* (reticulated *Willow*), leaves nearly elliptical-orbicular mostly glabrous remarkably reticulated with veins glaucous beneath, gemmae sessile oblongo ovate downy, style short, stipules bifid. *Lightf.* p. 601.

Han. On many of the Highland mountains, especially in a microscopic soil, as in the Breadalbanes range. *R. June*. 4.

Stems short, very woody, much-branched, procumbent. When cultivated, forming a beautiful tuft of considerable extent with its curiously reticulated large leaves. I have this, from Hudson's Bay, with long silky hairs on both sides the leaves.

28. *S. crumena* (downy *Mountain Willow*), leaves oblongo-lanceolate entire downy especially beneath, gemmae sessile lanceolate downy with a very long style, stipules linear obtuse. *E. B.* t. 1003, and t. 2256 (*S. Stenotoma*; fertile plant). *S. Swana, Wahl. Lapp.* p. 333. t. 16. f. 4.

Han. Breadalbanes, Dr. Stuart, Ben Linn, abundant, Mr. Mack. Clava mountains, G and D Don. *R. June*. 4.

One foot to two feet high, with dark brown, glossy bark. Leaves downy on silky, slightly so above, but especially beneath, where they are almost white. Gemmae with a remarkable long, slender, dark colored style. Stems almost black, very villous.

29. *S. glauca* (glaucous *Mountain Willow*), leaves ovate-lanceolate entire downy above and very silky beneath, gemmae sessile narrow-elliptical acute very downy, stipules sessile narrow-bifid. *E. B.* t. 1004. *S. Lepporum, Lightf.* p. 601.

Han. Highlands of Scotland, Dalziel. Clava mountains, G. and D. Don. *R. July*. 4.

Much resembling the last in every thing except the fruit, which is shorter, more obtuse, and terminated by the widely sessile stipules. Mr. D. Don has favoured me with specimens of what he supposes

to be the leaves of *Luna*; but without the illustrations I should be disposed to consider them a broad-leaved var. of this or the preceding species.

36. *S. repens* (grey Willow), monodelphous, leaves elliptical lanceolate acute edges somewhat downy glaucous and generally very silky beneath, grooved upon a long filament. lanceolate very silky, styles short, stigmatic lobes, stems more or less proscumbent.

a. "leaves entire elliptic-lanceolate submembranate nearly naked above glaucous and silky beneath, stem depressed," *Sm. Luna. Sp. Pl.* p. 1447, according to Smith. *R. B. L.* 163. *S. nemoralis*, *Engelm.* p. 604.

β. "leaves elliptical oblong subscabrate with recurved points glaucous and silky beneath, stem ascending, stipules acute serrated" (very minute linear-staccate entire, in my specimens from Smith), *Sm. S. adpressius*, *E. B. L.* 1933.

γ. "leaves elliptical nearly ovate with recurved points glaucous and silky beneath, stem decumbent, stipules acute entire," *Sm. S. parryana*, *E. B. L.* 1931.

δ. "leaves somewhat toothed" (spine entire in my specimens from *Sm.*) "elliptical oblong acute glaucous above glaucous beneath and silky, petioles attenuated" (not more so than in the other var.), *Sm. S. flexa*, *E. B. L.* 1933.

ε. "leaves entire elliptical somewhat revolute with a recurved point slightly hairy above beneath and on the branches with a silvery villousness," *Sm. A. argentea*, *E. B. L.* 1934.

Has a On moist banks and marshes, pinnatifid β Wet meads, abundant, *Id. Ida. γ* Marshes, Angus-shire, common, *G* and *D. Ida. δ* Marshes, N. of Forth, rare, *G* *Ida. Roadside between Auchincruive and Kilsythburgh, near Hawkinghill-lane, Mearns, a. banks of Burnie, G* *Ida. Near Clack, Mr. Welch R* May. 6.

I have given the characters of the above last willows in Smith's own words, and they may be considered species or var. at the pleasure of the student. The leaves, in all, are mucositate above, with pubescent nerves beneath: the outlines are oblong and differ in no respect, but the leaves vary so variable. It is a small, usually proscumbent shrub with rather long straight branches.

31. *S. cinerea* (grey Willow), leaves obovate-elliptical approaching to lanceolate generally slightly downy above, beneath pubescent and reticulated with veins glaucous the margins slightly recurved, stipules membranate, germen pedicellate lanceolate subulate silky, style short, stigmatic mostly entire. *R. B. L.* 1837, and 1437 (*S. aquatica*), and 1442 (*S. cinifolia*).

Has Banks of rivers and moist woods, in several places. *R. Apr. 6.* A small tree of an bushy and little use. The stipules cover all, and they are truly squarulate in *S. aquatica* as in *S. cinerea*, and

show different forms being the chief point of distinction indicated, and finding no characteristic marks in my own authentic specimens, I do not hesitate about uniting them. My plants of *S. virginica* likewise, from the same source, show no points of dissimilarity, though, like Sir James Smith, I have never seen the female calyx.

32. *S. aurita* (round-eared Sallow), leaves alternate serrate-dentate above with veins more or less pubescent very downy beneath their margins recurved tipped with a small recurved point, stipules rounded acuminate, gemmae hirsute-linear-subulate pedicellate silky, style very short, stigma generally entire. *Licht.* p. 633. *E. B.* t. 1453.

Hab. Woods and hedges, frequent. Fl. May. $\frac{1}{2}$

A small bushy tree, with straggling branches. May it not be, that in its younger age this would become *S. cuneata*? It is, however, decidedly more toothed, the more so, and shorter in the leaves. The gemmae of the two in my specimens are exactly similar, and longer than represented in *E. B.*

33. *S. repens* (rifty Rock Willow), leaves alternate appressed-linear subulate suberect pubescent and silky beneath veined, stipules small serrulate, "gemmae pedicellate hirsute-subulate, style short, stigma mostly entire," *Sm.* *E. B.* t. 2342.

Hab. Rocks on the mountains of Craig-Cathach and Muir-Chydrle, as well as near Abercrombie, Mr. Brown. On the Clava mountain, G. Don. Fl. May. $\frac{1}{2}$.

A trailing depressed shrub, probably a dwarf of one of the two preceding species.

34. *S. andersoniana* (green Mountain Sallow), leaves elliptical-oblong acute faintly serrate-dentate the upper ones chiefly subpubescent all glaucous beneath, stipules small subulate, branches minutely downy, gemmae pedicellate linear-subulate glaucous, style elongated, stigma lobed, scales fringed with a few long silky hairs. *E. B.* t. 2343.

Hab. Scotland, in various parts, *Sm.* in *E. B.* Clava mountain, G. Don. Fl. May. $\frac{1}{2}$.

A small tree or bush, differing from all the preceding species of this division in its glaucous gemmae. The leaves are all serrated, and so glaucous that the plant might be looked for in the first division.

35. *S. Fosteri* (glaucous Mountain Sallow), "leaves elliptical-obovate acute notched slightly downy glaucous beneath, stipules marked, branches minutely downy, gemmae stalked silky, stigma undivided," *Sm.* *E. B.* t. 2344.

Hab. Obtained by Mr. T. F. Foster from Scotland. Fl. May. $\frac{1}{2}$. I presume the silky gemmae will distinguish this plant (of which I have no specimens) from *S. andersoniana*, with which it is compared by its author, on the one hand; and with *S. larva* on the other. "like that turning black in drying," but the latter is a tree mostly more hairy, with larger, flat, quite smooth stipules, the leaves heart-shaped at the base," *Sm.*

35. *S. verticillata* (Quince-leaved Willow), leaves elliptic-lanceolar, obscurely dentate slightly pubescent above more so and very beneath, petioles slightly silky petioles, style elongated, stigma beak. *E. B. L.* 1433.

Hill. Road-side between Newton Stewart and Glasgow, Wigtownshire, March. Banks of the Ebb, near Forke, but rare, G. Don. *P. May.* ♀.

A small tree, according to Smith. Its leaves become bluish in drying.

37. *S. apiculata* (quilted-pointed Willow), "leaves entire elliptical plane pubescent on both sides, when but withered at the point, stipules obsolete, capsule subulate," *Sm.* *Lichtf.* p. 602 (*S. laevis*, according to *Sm.*). *E. B. L.* 1433.

Hill. Valley amongst the Highlands, as at Forke, at the head of Loch Tay, &c. Dr. Brown. *Edin. Linn.* March. *P. May.* ♀. It is a species, unknown to me.

38. *S. caprea* (great round-leaved Willow), leaves dentate-elliptical acute rounded and radiated at the margin downy beneath, stipules scaricordate, petioles pedicels lanceolate subulate silky, stigma sessile undivided. *Lichtf.* p. 607. *E. B. L.* 1438.

Hill. Woods and dry pastures, common. *P. April, May.* ♀.

A tree which distinguishes itself in the spring by being covered with blossoms before the leaves appear. The colour of both kinds are however and shorter than in most species, with crowded flowers. The Highlanders employ the bark in tanning, and the handles of various agricultural implements are made with its wood. The bark has even been used, and with success, instead of that from *Picea*.

39. *S. acuminata* (long leaved Willow), "leaves lanceolate-oblong pointed toward slightly toothed downy beneath, stipules linear-shaped, capsule cone tapering," *Sm.* *E. B. L.* 1434.

Hill. River banks, frequent, G. Don. Banks of the Kelvin, High Banks of the Ebb, near Musselburgh, and Collieston woods, by the river side, Kilmn, March. *P. April, May.* ♀.

Thus, Smith tells us, has been considered a one of the preceding, but both the leaves and the style are longer and narrower. I have two states of this plant from Mr. James Smith: in one the leaves are truly lanceolate, and the petioles as figured in *E. B.*; the other with the leaves as in *E. B.*, but the petioles nearly equal, a long style, and the anther with a beautifully silky fringe, which is longer than the fruit.

40. *S. asperula* (marched Olive), leaves lanceolate very indistinctly crenate white and downy beneath, stipules large semi-cordate acute, "petioles shortly pedicels ovate downy, style a beak elongated, stigma long oval-shaped recurved entire, uterine cylindrical," *Sm.* *E. B. L.* 1434.

Hill. Bridges and woods, common, G. Don. *P. March (Sm.)* ♀. Leaves 4-6 inches long, somewhat oval beneath. I have never seen the flowers.

41. *S. molliflora* (silly-deeped Willow), leaves lanceolate obscurely crenate white and silky beneath, stipules rather small cuneolobed acute, gemmae lanceolate-subulate very silky shortly pubescent, style elongated, stigmae long linear mucos. entire. *E. B. t.* 1728.

Hab. Banks of the Ede above Macclesburgh, near, March. Hodges and some grounds in Scotland, Inverness, 18 Dec. 21 April. γ . This is considered a native plant.

42. *S. viminalis* (common Osier), leaves linear lanceolate obscurely crenate white and silky beneath, stipules very small sublanceolate, branches straight and leafy, gemmae upon very short footstalks silky lanceolate-subulate, style elongated, stigmae long linear mucos. entire. *Lepchf.* p. 534. *E. B. t.* 1528.

Hab. Meadows, frequent. 21 April, May γ .

Whatever may be the difference in the economical value between this and the two preceding species, it must, nevertheless, be acknowledged that their specific distinctions rest upon very slight grounds. The present is considered among the most useful of the genus, in consequence of its long pliant twigs, for basket-making.—In all, the gemmae and long stigmae agree, and by these they may be known from all other species.

43. *S. alba* (common white Willow), leaves elliptical-lanceolate regularly glandular-serrate acute silky beneath often to above, gemmae mono-stemmate nearly sessile glabrous, stigmae nearly sessile short recurved bilob. scales short pubescent at the margin. *Lepchf.* p. 510. *E. B. t.* 2428, and t. 2441 (*S. viminalis*).

Hab. River sides, woods and moist meadows. 21 April. γ .

A well-known tree of exceedingly rapid growth, and of fine much cultivated about Glasgow, where it is known by the name of the *Hampshire Willow*. It is very distinct, and I regret that another species should have been made resting upon such slight grounds as the lesser degree of silliness on the leaves, and the β variation, &c. The learned author of the *E. B.* however, tells us he ventured to make it as that it might be the more useful. The growth of this var. (β) even such it may be called) is extraordinary. Dr. Hixley, of Marwick having planted a cutting, which in ten years became a tree of 35 feet in height, and 3 feet 2 inches in girth. The wood and bark of both kinds are valuable; the former for making iron poles, stakes, hoops, and even better-firkins and milk-pails, the latter not only for tanning, but as a substitute for Prussian bark.

2. TRIANDRIA.

1. EMPETRUM

1. *E. nigrum* (Black Gorse or Crane-Berry), prostrated, leaves linear-oblong. *Lepchf.* p. 512. *E. B. t.* 1526.

Hab. Mountains and heaths, frequent. 21 May γ .

A small procumbent branching shrub, with lance-ovate leaves, recurved at the margin, and serrate ciliate. Flowers axillary, towards the summit of the branches, rose colour, small. Berries black, clustered; these, though sometimes eaten by the Highlanders, are unpleasant, better suited to the magpie genus. Boiled with alum, according to Lighth., they yield a blackish brown dye.

3. RUSCUS

1. *R. aculeatus* (Barbier's Broom), stems rigid branched, leaves ovate-serrulate very rigid bearing the solitary flowers on its upper surface. *E. H. i. 360.*

Hab. Woods at Delford, Sept. Fl. March, April &c.

Flowers small, white, arising from the disk of the leaf. Berry red.

3. TETRANDRIA.

4. VISCUM

1. *V. album* (Mistle-toe), leaves lanceolate obtuse, stems dulcescentious, heads of flowers axillary. *E. H. i. 3470.*

Hab. Parasitic on trees, but rare. Woods of Melkismar (see brack trees?). Mr. Murray. Fl. May. 4.

Whole plant, including the flowers, yellowish. Berry whitish.

5. MYRICA

1. *M. Gale* (sweet Gale or Dutch Myrtle), leaves lanceolate broader upwards serrated, stems shrubby. *Lighth. p. 613. E. H. i. 382.*

Hab. Bogs and marshy ground, most abundant. Fl. May. 4.

This plant has a very agreeable smell; the leaves a better taste. In the Highlands, according to Lighth., they are given as tea to drive away worms; and occasionally they are used as hops in beer. The Irish and Jews the inhabitants scent their clothes and their houses with them. The bark when being boiled are said to produce a resin like the resin of *Myrica aspera* and to be capable of being employed for the same domestic purposes.

4. PENTANDRIA.

6. HUMULUS

1. The *Lupulus* (common Hop). *Lighth. p. 615. E. H. i. 427.*

Hab. Hedges, &c. In the plantation, Found, about Congerian castle, and on the Hamilton road, near Talloness, Gleng. Arch.

Hedges near Dabington, Mr. Arnot. Fl. July. 4.

Stems long, weak, and climbing, scabrous. Leaves petiolate, opposite, 3-lobed, serrated, veiny, rough. Flowers greenish yellow.

The fragrant leaves, so valuable in the manufacture of beer, reside in the catkins or cones as they are sometimes called.

5. OCTANDRIA.

7. POPULUS

1. *P. alba* (green white Poplar or *albic*), leaves roundish cor-

date lobed toothed glabrous above downy and very white beneath, fertile calicles ovate, stigmas 4. *Lighf.* p. 616. *E. B. t.* 1618.

HAB. In the Lowlands, near houses, and in plantations. *Fl.* April. *Y.*
A large tree, with smooth bark and spreading branches, of very rapid growth. The wood is white and soft, and only used for coarse purposes.

2. *P. tremula* (*Aspens*), leaves nearly orbicular broadly toothed glabrous on both sides, petioles compressed, "stigmas 4, marked at the base," *Sm.* *Lighf.* p. 616. *E. B. t.* 1609.

HAB. Frequent in moist woods, both in the Highlands and Lowlands. Described in some of the western Isles, *Lighf.* *Fl.* April. *Y.*

This tree is well known for the tremulous movement of its leaves with the slightest breath of wind. This motion is aided by the compressed petioles.—The bark is said to be a favourite food of the beavers, in countries where those voracious animals still exist, and the wood serves for pack-saddles, milk-pails, &c. Lightfoot tells us that the Highlanders maintain a superstitious notion that our Saviour's cross was made of this tree, and for that reason suppose that the leaves of it can never rot.

3. *P. nigra* (*Black Poplar*), leaves deltoid acute serrated glabrous on both sides, fertile calicles cylindrical lax, "stigmas 4." *Sm.* *Lighf.* p. 618. *E. B. t.* 1609.

HAB. Often seen about houses, and in plantations, but a doubtful native, *Lighf.* *Fl.* April. *Y.*

Forms a very large and tall tree of quick growth, having a light and not very valuable wood, as is the case with most trees that come near to perfection.

5. RHODOILA.

1. *Rh. rosea* (*Rose-rose*), *Lighf.* p. 619. *E. B. t.* 1608.

HAB. Upon wet rocks towards the summit of most of the Highland mountains. *Fl.* June. *Y.*

Root large, woody, which when drying gives out a smell that has been compared to that of roses. Stem 5—8 or 10 inches high, simple. Leaves numerous, suboblongated, obscure, sticky fleshy, glaucous, serrated at the point, and in the sterile plant tipped with a reddish tint. Flowers in a small terminal cyme, yellow, agreeing with *Sedum* in every thing but the number of its parts, and having a good deal the habit of *S. Telephium*.

3. ENNEANDRIA.

2. MERCURIALIS.

1. *M. perennis* (*perennial or Dog's Mercury*), stem perfectly simple, leaves rough, root creeping perennial. *Lighf.* p. 626. *E. B. t.* 1672.

HAB. Woods and shady places, common. *Fl.* April, May. *Y.*

About 1 foot high, herbaceous. Leaves mostly in the upper part, ovate, serrated. Flowers in axillary, short, lax spikes.

This plant is drying because of a blue green colour, and it was supposed it might yield a useful dye. With this view, Mr. Maclean of Glasgow, a most able chemist, tried various experiments, which were published many years ago in *Curtis's Flora Lond.*; but he never could succeed in fixing the fine blue colour which the plant yielded. It is considered poisonous.

2. *H. arvensis* (annual *Morrry*), stem branched, branches opposite, leaves glabrous, root fibrous annual. *Lighf.* p. 631. *E. D. t.* 889.

Hab. Waste places about towns and villages, but not common. *Enriched, Lighf.* In the parish of *Almalyke, Rev. Dr. Goss*, June, *Fl. Aug. 9*.

One foot high. Single flowers on long, solitary, interrupted spikes.

16. HYDROCHARIS.

1. *H. Minus rana* (common *Frag-ill*), *Lighfoot*, p. 632. *E. D. t.* 895.

Hab. Ditches and slow-flowing waters, but rare, *Sheld.* *Fl. July 2*. Floating and sprawling down from the horizontal stems long fibrous nodules. Leaves pinnate, venation, entire. Flowers subsessile, from membranous bracteos or spatula, large, white, delicate.

7. MONADELPHIA.

11. JUNIPERUS.

1. *J. communis* (common *Juniper*), leaves terete spreading approximate longer than the berry. *Lighf.* p. 633. *E. D. t.* 1103.

Hab. Woods and heaths, frequent. Very darkish as the moss in the north of *Cartoon*. *Fl. May, 5*.

A shrub extremely variable in size, with numerous lower unbranched leaves. Flowers solitary, small. The berries, which are bluish black, form an important article of commerce in Holland, where they are employed in the distillation of *Geneva*, and they give that singular flavour which our distillers try to imitate by oil of turpentine. They are used in medicine. The wood is reddish and hard, and employed for fencing, &c. It emits a fragrant smell when bruised.

12. TAXUS.

1. *T. baccata* (common *Yew*), leaves thickly set. *Lighf.* p. 636. *E. D. t.* 746.

Hab. Found here and there in the Highlands in a truly wild state. At *Glenure*, near *Glen-Crossa* in Upper Lorn, are the remains of an old wood of it, thence the name of the valley *Glenmore*, the valley of *Yew-trees*, *Lighf.* *Fl. March, 5*.

A tree of no great height, but often of considerable diameter. *Lighfoot* tells us of one tree which *Mr. Pennant* saw in *Fairford* churchyard, whose trunk measured 264 feet in circumference. The leaves are darkish green, linear, permanent, of a deep green colour. Berries small, diamond. Drupes red, enlarged poisonous. The

wood is hard, beautifully grained, much valued for cabinet-maker's work, and was formerly still more highly prized for making ark bows; and on that account is said to have been planted so frequently by our ancestors in churchyards.

XXIII. POLYGAMIA.

1. MONOECIA.

1. *Arctostaphylos*. Perfect fl. Perianth single, 5-partite, inferior. Stam. 5. Style bipartite. Fruit depressed, 1-seeded, covered by the cal.
- Pachyphyllum* fl. Perianth single, 2-partite. Stam. 6. The rest as in the perfect fl.

1. MONOECIA.

1. ATRIFLEX.

1. *A. portulacoides* (shrubby *Crack* or *Sea Portulaca*), stem shrubby, leaves obovate-lanceolate entire silvery white. *Lightf.* p. 638. *E. B. t.* 361.
Hus. Sea shore, in sandy places. Near Hellenburgh, High. fl. Aug. 4.
One foot to two feet or more high, with small yellowish flowers, in solitary racemes.
2. *A. incanula* (fretted *Sea Crack*), stem herbaceous diffuse, leaves ovate-oblong incanous-silicate very mealy beneath. *Lightf.* p. 638. *E. B. t.* 103.
Hus. Sea shore, not uncommon. fl. Aug. 6.
Whole plant hoary. Flowers solitary, 2—3 together.
3. *A. patula* (spreading *Holland-leaved Crack*), stem herbaceous spreading, leaves triangular hastate glabrous above, irregularly toothed the upper ones entire, perianth of the fruit more or less tuberculated at the sides. *Lightf.* p. 638 (*A. parvifl.*). *E. B. t.* 836.
Hus. Cultivated ground and waste places, frequent. fl. July. 6.
Stems straggling, branches long, diffuse. Flowers in small clusters upon long interrupted solitary spikes.
4. *A. angustifolia* (spreading narrow-leaved *Crack*), "stem herbaceous spreading, leaves lanceolate entire the lower ones somewhat hastate, cal. of the fruit hastate slightly tuberculated at the sides." Sm. *Lightf.* p. 637 (*A. patula*). *E. B. t.* 1774.
Hus. Waste places, dung-hills, &c. fl. July. 6.
This seems to be but a narrow-leaved var. of the preceding.
5. *A. littoralis* (grass-leaved *Sea-Crack*), stem herbaceous erect, leaves all linear entire or toothed, perianth of the fruit

elevated and emarginated on the back. *Lights* p. 835, and p. 837 (*A. maritima*). *E. B.* t. 708.

Hab. Sea shore. About Dynamis Dock, on the coast of Fife, *Lights* Score to the E. of Caroline Park, Gifford Links, G. Den. Below the house at Carriden in W. Lothian, Dr. Walker. *R* July. *©*. The under side of the leaves and the flowers are mealy. The latter are in rather crowded, axillary, and terminal spikes.

XXIV. CRYPTOGRAMIA.

This, the only remaining class in the Linnean System, being a perfectly natural one, and coming the first in the natural arrangement (to which the *Second Part* of this work is devoted), and the characters of the Orders and Genera being the same, it is thought quite unnecessary to repeat them here.

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